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ABSTRACT

This report is essentially a summary of many studies and papers prepared during the course of a two-year project. The goal of the project was to develop a planning methodology for meeting educational program needs in allied health professions to be used in the California state higher education system. For the purpose of this project, nursing is excluded from the allied health professions. The function and problems of allied health education in the California system are discussed, as are finances, implementation, and the conclusions and major recommendations resulting from the study. Appendixes include a list of papers prepared as part of the study, the membership lists for major project committees, a list of occupational families and job specialties studied, the model affiliate agreement, the text of the state legislation authorizing the project, and a bibliography. (Author/MSE)

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FINAL REPORT OF THE HEALTH MANPOWER EDUCATION PROJECT

The California State University and Colleges

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JANUARY, 1977

THE CALIFORNIA STATE UNIVERSITY AND COLLEGES

HEALTH MANPOWER EDUCATION PROJECT

FINAL REPORT

CONTRACT NO. 1 - AH - 44109

JANUARY, 1977

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An undertaking as complex as the Health Manpower Education Project is inevitably the end product of many individuals, including those with the CSUC campuses, the Chancellor's Office and the project staff itself. In addition, numerous persons from outside agencies contributed advice, information and moral support.

The project was the brainchild of Harold Best, Donald Fletcher, J. J. Thompson, David Walden and James Wiechers. The early conception was nurtured by Gerhard Friedrich. The project benefited from the counsel of three committees which helped to guide it, the Master Planning Committee, composed of representatives of government and all segments of California postsecondary education, the Campus Planning Committee, composed of representatives from each of the CSUC 19 campuses, and the Project Committee, composed of campus and Chancellor's Office representatives.

We were fortunate to have many dedicated staff members who infused the project with a spirit of camaraderie and task orientedness. Among them were Maria Balbuena, William Blanchard, Audrey Frank, Eric James, Blaine Shanks, Patty White, and Zoé Yaskiel.

Robert Bess was a supportive supervisor of the project. Jack Baird was particularly helpful in advising on both procedural and technical matters throughout the project. David Walden was a constant source of encouragement and wise advice. Harold Best provided perceptive insights and was unstinting in his willingness to help. Gary Levine undertook the difficult task of condensing much of our material, in the final writing. Alex Sherriffs took time from a busy schedule to chair the Master Planning Committee.

I wish to acknowledge also the prodigious efforts of Donald Fletcher who, although Assistant Project Director by title, could more justifiably be described as Co-Director.

Finally, my thanks to my wife and family, who have patiently endured my many extended hours away from home.

Roy S. Burwen, Director
Health Manpower Education Project

CHAPTER I. INTRODUCTION

This is the final report of The California State University and Colleges Health Manpower Education Project, a two-year study funded by the Health Resources Administration of the United States Department of Health Education and Welfare. This document is essentially a summary of many studies and papers prepared during the course of the project. These are listed in Appendix A. A set of these papers has been provided to the contracting agency. Others who may be interested in particular papers will find them available for examination on file in the Office of the Chancellor, 400 Golden Shore, Long Beach, California 90802.

The goal of the project has been to develop a planning methodology for meeting educational program needs in allied health professions which could be utilized in The California State University and Colleges. For this report, the allied health professions are defined as those occupations involved in health care delivery which require at least one year of formal instruction at the postsecondary level plus a practicum component in a clinical or agency setting. While nursing would be included under this definition, it is excluded by the terms of the contract with the Department of Health, Education and Welfare.

The introductory chapter describes the multi-faceted system of postsecondary education in California and in more detail The California State University and Colleges (CSUC). The status of allied health planning in California prior to the Health Manpower Education Project as well as the need for and organization and scope of the project are also summarized.

A. California's Postsecondary Education System

Postsecondary education in California includes three public segments - the 9-campus University of California; The California State University and Colleges with its 19 campuses; and the California Community Colleges with 103 campuses; and two non-public segments - the independent colleges and universities with 83 campuses; and the "private" or proprietary schools which number approximately 1,800. The agency charged by law with statewide planning and coordination is the California Postsecondary Education Commission (CPEC), the membership of which includes representatives of the public, the State Board of Education (K-12), and each segment.

The basic missions of the three public segments are defined in statute. The state's Donahoe Higher Education Act, adopted in 1960, delineates the instructional function of each. The University of California is the primary state agency for basic research, instruction at the doctoral level, and graduate instruction in medicine, law, veterinary medicine, and pharmacy. The California State University and Colleges provide instruction through the master's degree in the liberal arts and sciences, applied fields, and in the other professions, including teaching and a limited number of doctoral programs with the University of California. Faculty research consistent with the instructional mission is authorized. The California Community Colleges provides freshman and sophomore level academic instruction for students intending to transfer to a four-year institution as well as a wide range of vocational and occupational programs.

This arrangement of segmental functions reflects recommendations made in the 1959 report of the Survey Team on the Master Plan for Higher Education. The California Postsecondary Education Commission is responsible for recommending to the Legislature changes in the roles of the various public segments. More recently, in the early 1970's, both the Legislature and the Coordinating Council for Higher Education (the predecessor to CPEC) separately restudied the Master Plan for Higher Education and concluded that the state has been well served by the present higher education structure. Consistent with the Federal Higher Education Amendments of 1972, California has recognized the broader concept of "postsecondary education" and the relationships that exist among the entire range of institutions providing educational services beyond the high school; hence, the replacement by 1974 legislation of the Coordinating Council for Higher Education with the California Postsecondary Education Commission.

Adherence to the principle of differentiation of function among the segments has contributed to the quality of postsecondary education in California by focusing developmental efforts on programs that reflect the basic academic strengths of each segment. As a result, competition for public and private resources to duplicate programs best offered by another segment has been minimal. However, differentiation of function does not mean total absence of duplication or cooperation in programming.

The California system includes a well established structure for voluntary program articulation between institutions. The structure, operating as the California Articulation Conference, develops agreements to assist in the transfer of undergraduate student between and within the segments with maximum applicability of work taken at other institutions, thereby minimizing student loss of credit and time. The Articulation Conference is made up of all California educational segments: K-12 (selectively) and postsecondary; public and non-public.

Any consideration of California postsecondary education must take into account the complex network of inter-institutional, inter-segmental consortia that facilitates and supports the offering of cooperative programs throughout the state. A 1973 study identified 56 existing consortia in which 50 community colleges, 16 CSUC campuses, 3 UC campuses, and 16 private colleges and universities then participated. 1974 legislation (AB 3011) added a section to the Education Code which expresses the Legislature's support for cooperation between the segments.

B. The California State University and Colleges

The individual California State Colleges were brought together as a system by the Donahoe Higher Education Act of 1960. In 1972 the system was renamed The California State University and Colleges and 14 of the 19 campuses were redesignated "University."

The oldest campus - San Jose State University - was founded in 1857 and became the first institution of public higher education in California. The newest campus - California State College, Bakersfield - began instruction in 1970.

Responsibility for The California State University and Colleges is vested in a Board of Trustees, whose members are appointed by the Governor. The Trustees appoint the Chancellor, who is the chief executive officer of the system, and the Presidents, who are the chief executive officers of the campuses.

The Trustees and the Chancellor set systemwide policy, which is developed and implemented through broadly based consultative procedures. The Academic Senate of The California State University and Colleges, composed of elected faculty representatives from each campus, recommends academic policy to the Board of Trustees through the Chancellor.

While each campus in the system has its own unique geographic and curricular character, all campuses, as multi-purpose institutions, offer undergraduate and graduate instruction in the liberal arts and in numerous professional areas. Each campus requires for baccalaureate graduation a basic program of "General Education

Breadth Requirements" regardless of the major field selected by the student.

Enrollments in fall 1975 exceeded 310,000 students, with a faculty of 16,800. That year, the system awarded over 57% of the bachelor's degrees and 46% of the master's degrees granted in California. Almost 600,000 persons have been graduated from the 19 campuses since 1960.

According to the most recent CSUC report on academic program and resource planning, the systemwide curriculum consists of 910 bachelor's, 524 master's, and 6 joint doctoral programs. By 1981, the system projects the addition of 67 bachelor's and 80 master's degree programs to the curriculum. See Table I-A.

C. Allied Health Program Planning in California Postsecondary Education

Prior to the inception of the CSUC Health Manpower Education Project, there was no structure in California with the specific purpose of relating the development of allied health educational programs to the needs of society for trained professionals in these areas. Indeed, only very recently has the state made an authoritative assignment of responsibility to one of its

TABLE I-A
EXISTING AND PROJECTED DEGREE PROGRAMS AND TERMINOLOGIES IN THE CALIFORNIA STATE UNIVERSITY AND COLLEGES*

Subject Area	Existing Degree Programs Bach.	Existing Degree Programs Mast.	Projected Degree Programs 1976 - 1981 Bach.	Projected Degree Programs 1976 - 1981 Mast.	Existing and Projected Degree Terminologies (Excluding Duplication)
Agriculture and Natural Resources	29	4	3	1	28
Architecture and Environmental Design	7	8	–	1	6
Area Studies	22	7	4	–	8
Biological Sciences	50	26 +Ph.D.(2)	-	1	10
Business and Management	28	32	1	4	11
Communications	24	7	1	2	8
Computer and Information Sciences	7	7	5	3	4
Education	59	57 +Ph.D.(2) Ed.D.(1)	5	5	13
Engineering	50	25	1	7	24
Fine and Applied Arts	63	36	18**	22**	10
Foreign Languages	56	27	–	–	7
Health Professions	42	27	10	8	13
Home Economics	16	9	–	4	4
Letters	71	45	–	2	10
Library Science	–	2	–	–	2
Mathematics	26	19	–	1	2
Physical Sciences	97	40 +Ph.D.(1)	1	4	12
Psychology	21	24	1	1	3
Public Affairs and Services	41	30	8	6	13
Social Sciences	149	79	1	5	19
Interdisciplinary Studies	52	14	8	3	10
TOTALS	910	524 +Ph.D.(5) Ed.D.(1)	67	80	217

* Does not include programs offered only as external degrees.

** Not all of these projections have received the endorsement of the Board of Trustees. They represent projections which will be considered within the number of professional arts programs authorized by the Board.

agencies for the preparation of a health manpower needs plan. Even so, fiscal control agencies such as the Department of Finance and the Office of the Legislative Analyst have been historically concerned about the size and cost of educational programs in the health fields.

The training of health manpower, however, does not rest with the formal postsecondary education system alone. In-service training constitutes a large portion of the activities of many health care facilities. Prepaid group health programs, such as Kaiser Permanente and Ross Loos, have intensive basic and continuing education training programs for their personnel.

In August 1976, the Governor of California signed AB 1748 (1976 Session of the Legislature) mandating development of a health manpower plan by the State Department of Health, which plan must be updated biennially. Using the findings and recommendations in this plan, the California Postsecondary Education Commission must then prepare a statewide health sciences education plan, also to be updated every second year (Appendix E).

In September 1976, the Chancellor of The California State University and Colleges, at the third in a series of statewide conferences sponsored under the auspices of the Health Manpower Education Project, offered to share fully this project's results to assist in developing the two plans called for in AB 1748.

D. Need for and Inception of the Health Manpower Education Project

Two developments have combined to make the allied health professions a particular program planning concern. First, substantial changes are underway and contemplated at national and state levels in the broad area of health care delivery--changes which are likely to affect distribution of health manpower and perhaps identify entirely new needs. Second, student interest in health and health-related programs has been increasing so rapidly that the system has not been able to accommodate it fully. From the perspective of program planning, the essential aim is to make productive use of current student interest in health and related programs by correlating choices and availability of programs with actual needs for trained manpower in the many health and related professions. Without careful planning and coordination, it is likely that the combined effects of constantly increasing numbers of graduates and changes in the types and levels of training required to implement new concepts in health care delivery modes would probably lead to over-supplies in some fields and shortages in others.

Discussions of these developments among CSUC faculty, campus academic administrators, and Chancellor's staff led to support for a comprehensive study by the system of its special planning needs in the allied health areas. Two major statewide conferences were called by the Office of the Chancellor. The first, sponsored jointly with the Bureau of Health Manpower Education of the National Institutes of Health, took place in May 1973. Its purpose was to define the elements of a coordinated approach. The second, sponsored jointly with the American Association of State Colleges and Universities under funding from the Bureau, was held the following May to develop the necessary strategies for improving statewide coordination of allied health programs. Subsequently, a proposal to support such a study was funded by the Division of Associated Health Professions, Health Resources Administration, United States Public Health Service, Department of Health, Education and Welfare, and the CSUC Allied Health Manpower Education Project was established early in the 1974-75 academic year.

The Health Manpower Education Project was organized with a small central research staff, a faculty coordinator on each campus, and three major committees: a twelve-member Master Planning Committee made up principally of representatives from educational and governmental organizations to provide for coordination between HMEP and others involved in or concerned with health planning; an eight-member Project Committee of CSUC faculty and administrators to advise the Project Director; and a nineteen-member Academic Planning Committee composed of the campus faculty coordinators to provide advice on data elements and local program concerns. Figure I-B shows the project structure. The membership of each committee is listed in Appendix B.

The project established the following five goals related to planning in allied health areas:

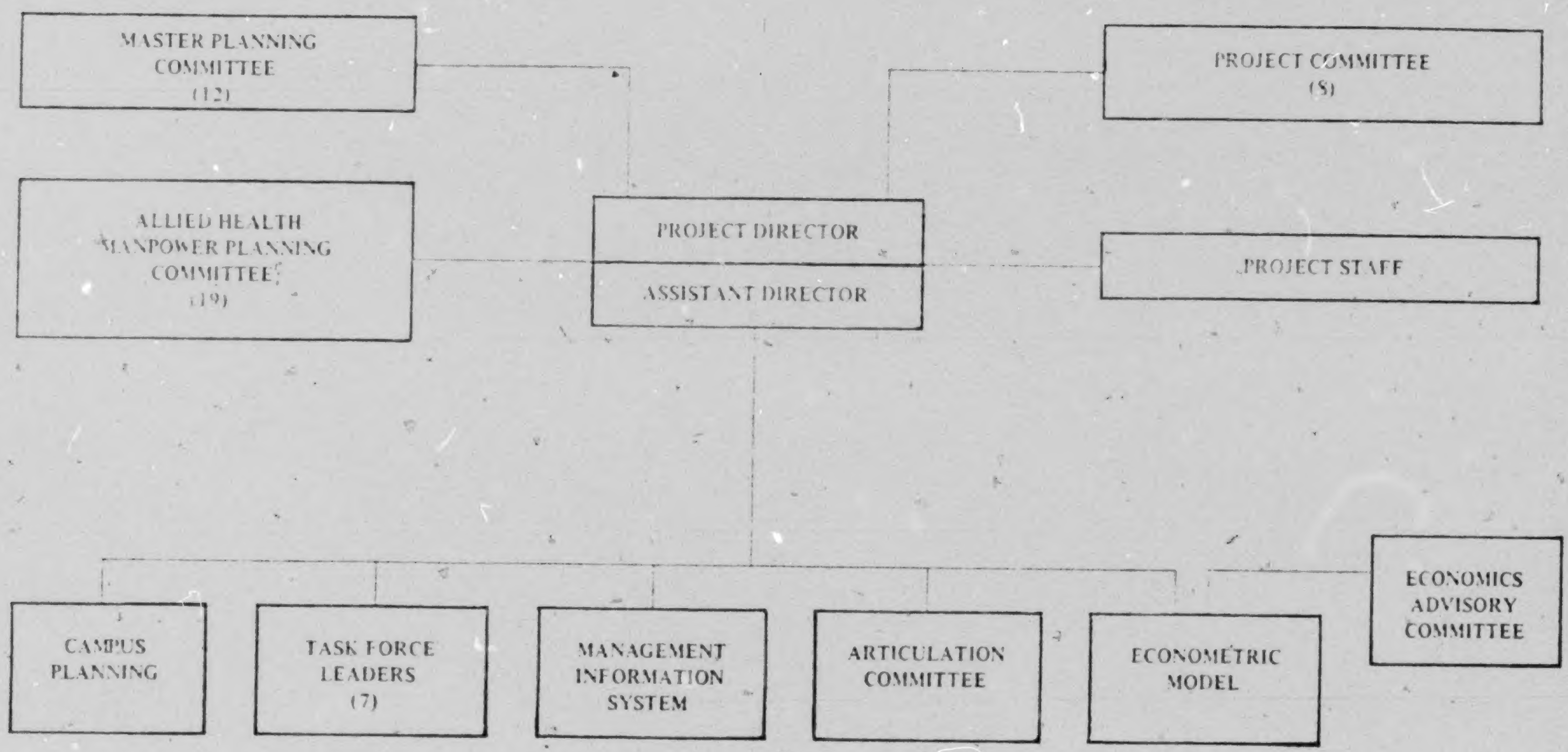
1. Improved distribution of allied health programs within The California State University and Colleges;

2. Improved utilization of clinical training sites;

3. Improved forecasting ability of need for allied health personnel in California;

FIGURE I-B

PROJECT ORGANIZATION


MASTER PLANNING COMMITTEE (12)
ALLIED HEALTH MANPOWER PLANNING COMMITTEE (19)
PROJECT DIRECTOR
ASSISTANT DIRECTOR
PROJECT COMMITTEE (8)
PROJECT STAFF
CAMPUS PLANNING
TASK FORCE LEADERS (7)
MANAGEMENT INFORMATION SYSTEM
ARTICULATION COMMITTEE
ECONOMETRIC MODEL
ECONOMICS ADVISORY COMMITTEE

4. Improved allied health program articulation among postsecondary education segments in California, public and non-public; and

5. Improved intersegmental cooperation in the preparation and production of allied health professions personnel.

In pursuit of these goals, the project charted eight specific tasks to carry out during its expected two-year duration:

1. Identify all CSUC allied health programs by campus;

2. Identify enrollments and degrees granted for each program;

3. Identify clinic/agency affiliates by program and their capacities to accommodate student placements;

4. Develop a plan for collecting similar programmatic and affiliate data from other California postsecondary education segments;

5. Develop a plan for improved allied health program articulation at all levels;

6. Develop a supply/demand model for projecting allied health manpower needs for California to 1980 in selected occupational categories;

7. Develop a model clinic/agency affiliate-educational institution standard agreement; and

8. Develop the specifications for a systemwide management information system for allied health education programs which will maintain and provide the information necessary for improved planning and development decisions on campus and systemwide.

Efforts to achieve the five goals and accomplish the eight tasks have been the core of the project. These are discussed and documented throughout this report.

The 15 health occupational families which have been included in this study are those with counterpart training programs on one or more CSUC campuses. (See Appendix C for a full listing of the professions within each family.) They are:

1. Clinical laboratory science;
2. Dietetics;
3. Environmental health/sanitation;

4. Health education;

5. Health care management;

6. Occupational therapy;

7. Physical education;

8. Physical therapy;

9. Psychology;

10. Recreation therapy;

11. Rehabilitation counseling;

12. Special education;

13. Speech pathology/audiology;

14. Social work (medical and psychiatric); and

15. Health-related professions not elsewhere classified.

The entry level requirement for employment is the baccalaureate degree or higher. Individuals trained in these professions are employed in clinical or agency settings which require knowledge about health aspects of the environment, direct patient care, the records of patients, or the ability to quantitatively analyze specimens obtained from patients.*

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*Lewis, Ann, 1974. The Use of Analytical Techniques to Determine Health Manpower Requirements for Educational Planning - Or How Do I Find Out What Skills and Knowledges to Teach? Fostering the Growing Need to Learn, Regional Medical Program Service, Health Resources Administration.

Task forces of CSUC faculty and clinic/agency affiliate personnel were established for intensive study of the following allied health fields: medical technology, occupational therapy, dietetics, physical therapy, speech pathology/audiology, health administration, and environmental health programs. These seven fields were selected because they are among the largest CSUC allied health programs, are offered through a variety of educational delivery systems, and can be matched with specific manpower occupational titles. A comprehensive task force report for each program has been completed.

During its two-year duration, the Health Manpower Education Project sponsored three statewide conferences for CSUC faculty and administrators, clinic/agency affiliate personnel, and state and local health officials. Proceedings of the first conference (December 1975) have been published and disseminated. Some of the outcomes of the third conference, "Statewide Planning and Coordination of Allied Health Programs," (September 1976) are reflected in this report, and will be published separately in proceedings.

CHAPTER II. PLANNING CONTEXTS OF ALLIED HEALTH PROGRAMS IN THE CALIFORNIA STATE UNIVERSITY AND COLLEGES

This chapter describes the institutional and professional contexts for planning allied health education programs in The California State University and Colleges. "Institutional context" refers to the general curricular planning and approval policies and processes of The California State University and Colleges and the California Postsecondary Education Commission. "Professional context" as used refers to factors that are related to some aspect of the nature of allied health programs, either practical or academic, which are beyond the direct control of educational institutions.

These two contexts are not completely separable in practice, and each overlaps and impacts on the other. Both were analyzed from many perspectives during the course of the Health Manpower Education Project. The factors discussed in the "professional" context section were identified during the course of the study as ones which do now or will in the future influence allied health educational planning decisions in The California State University and Colleges.

A. The Institutional Context: The California State University and Colleges

In 1963, the system's Board of Trustees adopted planning policies which were designed to regularize curricular development and to guide program distribution in the then rapidly expanding system, and to facilitate the progress of each individual campus in meeting the primary function as expressed in the statewide master plan. These policies, published in the 1963 Master Plan for the California State Colleges, are still in effect. In summary, they provide that:

- Curricula are to reflect the needs of students and of the state.

- The foundation program for all campuses in the system consists of the liberal arts and sciences, business administration and teaching. (The Board defined specific subject areas which would be regarded as the "Broad Foundation Program.")

- Programs in applied fields and professions other than those above are to be allocated within the system on the basis of 1) needs of the state; 2) needs of the campus service area; and 3) identification of employment opportunities.

- "All colleges cannot be all things to all people." Curricula in the applied fields and professions are therefore to be located in a pattern which will achieve an equitable and educationally sound distribution of programs throughout the state.
- While all campuses may wish to offer the same programs, the Trustees exercise great selectivity in the final approval of new curricula.
- Specialized, high cost programs are to be allocated on the basis of review and study of the individual subject area.

Subsequent reinforcing policies adopted by the Board include the following:

- Degree programs are to be broadly based and of high academic quality.
- Unnecessary proliferation of degrees and terminologies is to be avoided.

- A formal review of existing curricula is to be conducted by each campus regularly as part of the overall planning process.

- The Academic Master Plans serve as the basis for campus facilities master planning.

Responsibility for implementing Trustee policy with respect to systemwide curricular development is delegated to the Chancellor. The Academic Master Plans are submitted by each campus to the Chancellor's Office, where suggested projections are reviewed individually and in the context of the campus' total offerings and projections, the offerings of the system, and where applicable, the state. They are also reviewed in terms of campus resource capabilities. Following the annual review and updating, the plans are submitted to the Board of Trustees. Trustee endorsement of all degree program projections is required before proposals for individual programs can be submitted for consideration. The review and approval of new degree programs which have been endorsed by the Board of Trustees is a function which the Board has delegated to the Chancellor.

Because the planning policies of the Board are quite general, they can be applied with whatever degree of flexibility external conditions require and individual situations warrant. In determining "needs of students and needs of the state," there are obviously degrees of accommodation, and these are frequently dictated as much by public policy as by internal system policy. Since the provision of educational opportunity is only one of several state priorities, internal system judgments about "needs of the state" are made within a predefined context which is often made explicit by such state agencies as the California Postsecondary Education Commission. State priorities for higher education were also discussed in the 1973 Report of the Joint Committee on the Master Plan for Higher Education. One pertinent observation in the Joint Committee report is the following:

> We question whether...every campus can be self-sufficient and all-inclusive. It seems clear that enrollments and fiscal conditions will not permit the duplication involved in making every campus comprehensive.

In general, observations and recommendations external to the system currently encourage increased access to programs, not through increasing their availability at each campus but rather through new ways that are thought to be more cost effective--cooperative efforts, use of technology, development of specialized campus missions where more than one campus serves a region, and other experimental approaches.

The details of implementing these concepts in terms of making specific program decisions are generally a matter of internal system determination. Given the factors of diminishing enrollment growth and changes in public priorities as reflected in budgetary allocations, the following may be summarized as the considerations currently used at the systemwide level in reviewing the program projections submitted annually on the Academic Master Plans of each campus. The questions are based on the premises that there will be fewer new resources available for the development of new programs (because of little or no enrollment growth); that it will be more difficult to meet new needs with new programs than in the past; and, in general, that fiscal and social conditions call for reconsideration of past plans.

For the five-year Academic Master Plan of each campus:

1. Are the anticipated resources of the campus (primarily in terms of existing faculty positions

and new faculty positions anticipated from total campus enrollment growth) sufficient to initiate and sustain all of the programs projected? If not, will some faculty positions be reassigned from existing programs, or will the number of projected programs be reduced?

2. Is there a campus commitment to placing resources into the development of new programs rather than into existing programs?

For each program projected on the Academic Master Plan:

1. Does this program fill an unmet need in terms of a) student demand; or b) statewide or regional manpower needs? If neither of these, is there a compelling rationale for the program?

2. Is the new program the most efficient way of meeting the need identified, or are there other alternatives?

3. Are expectations about student enrollment realistic when compared with experience at other campuses?

4. Do programs exist on the campus or at nearby campuses from which the projected program would draw students? If so, have plans been made for the resulting enrollment declines in existing programs?

5. If the program is one which will prepare students for a specific occupation or profession, are there current surpluses of individuals in the region or in the state so trained? If so, are there indications that the need will increase? If not, is this a wise investment of resources?

6. If the program is one which is designed to provide professional upgrading of individuals who are already employed, are there openings in the higher professional levels?

7. Will failure to implement this program require altering other plans of the campus? Will some instructional areas be left incomplete?

It is important that judgments about new programs be made not on only one of these factors, but by full consideration of all of them--and by consideration of any other factors which might be unique to a particular program. It is also important to note that application of all these factors can raise additional policy questions. For example, sometimes regional manpower needs are in conflict with statewide needs. It is not unusual for student demand for some occupational programs to exceed greatly the needs which are perceived to exist for individuals with this training. A program which is important and critical to the development of one campus may, if implemented, result in enrollment declines in the corresponding program at another campus.

In such cases, there is probably more to be said for common sense, individually applied solutions than for rigid policy. For example, the importance of conflicts between regional and statewide manpower needs varies in accordance with whether the campus in question generally serves a regional or statewide clientele. Conflicts between student demand and manpower need are more critical if the program under review represents a substantial investment of the state's resources. Programs which would bring new students to a campus may be regarded differently than programs which provide a broader choice to students who have attended college already. There is moreover a balance to be maintained when there are differences in what is to the benefit of an individual campus, what is to the benefit of the system, and what is to the benefit of the state and its citizens. While external conditions may cause shifts of this balance, it is critical that the importance of all three be recognized.

One way of maintaining the ability to meet new program needs is through the restructuring and updating of existing programs, and through the redistribution of allocated resources from existing programs to new programs. With some modifications, the procedures of program performance review, in conjunction with academic master planning and degree review and approval, can serve this function.

The efficient operation of existing programs will be a critical element in the maintenance of program flexibility and, indeed, the performance review of existing programs originated primarily as an efficiency measure. First, House Resolution 376 (1969 Session of the Legislature) directed the Coordinating Council for Higher Education to undertake a study of expensive, limited-use academic programs and facilities at strategic locations in the public segments of higher education in California. This study resulted in two Council reports. The first, adopted in 1969, was entitled Survey of Educational Offerings and Academic

Plans with a Consideration of Higher Cost Programs: A First Report. The final report, Higher Cost Programs in Public Higher Education, was approved by the Council in March 1971.

In 1971, the Board of Trustees called for the establishment of performance review procedures for all existing undergraduate and graduate programs and, since that time, the Trustees have annually resolved "that a formal review of existing degree curricula continue to be conducted each year by the campuses as a part of the overall academic planning process." The campuses were requested to establish procedures whereby all programs would be reviewed in qualitative and quantitative terms over a five-year period. Summary reports on the annual review are required each year by the Trustees as part of the Academic Master Plan submission.

In a time of little or no growth, efficiency in the offering of programs is all the more critical, and because of some resource imbalances which could occur, periodic review of qualitative factors is also essential. Established review procedures, in which the Chancellor's Office monitors systemwide developments and each campus is responsible for the periodic review of every program, serve the following functions:

- The capabilities of existing programs to meet new needs--whether by updating or by combining in new interdisciplinary formats--can be periodically assessed;

- Where appropriate, curricular revisions and modifications can be made in existing programs;
- Information on enrollment trends can be examined term by term at the systemwide level and made available to the campuses at an early stage;
- Areas where enrollment declines are occurring can be identified and enrollment distributions planned;
- Methods for increasing efficiency or improving quality in individual programs can be explored;
- Appropriate adjustments can be made in programs where resources are not being used efficiently; and
- Campus administrators will have more information on which to base decisions involving priorities among existing and projected programs.

In effect, then, the established procedures of Academic Master Planning, degree review and approval, and program performance review provide a framework within which to develop and maintain programs in diverse academic fields. Some operational changes in these procedures may be anticipated, particularly with regard to planning of the directions of existing programs and the impact of these plans upon projected programs.

B. The Institutional Context: The California Postsecondary Education Commission

The responsibilities of the California Postsecondary Education Commission as outlined in the Education Code include the following:

1. Require the governing boards of the segments of public postsecondary education to develop and submit long-range plans;

2. Prepare a five-year state plan for postsecondary education which integrates the planning efforts of the public segments and other pertinent plans; and

3. Update the state plan annually.

In response to this charge, the Commission approved, in December 1975, Planning for Postsecondary Education in California: A Five-Year Plan, 1976-81. The plan addresses four major topics:

1. The Future of Postsecondary Education;
2. The Planning Process, Values and Goals;
3. Plans of Action; and
4. Program and Facilities Planning.

Under "The Future of Postsecondary Education," assumptions are made about state funding, fiscal conditions, student choice, and student participation in higher education; access, public attitudes, and accountability. In discussing projected state enrollments and expenditures, the plan notes:

> If current trends within the state continue, particularly as they relate to the accommodation of part-time students in the Community Colleges and the State University and Colleges, California should not experience the decreased undergraduate enrollments that were forecast by the Carnegie Commission for the mid-1980's. The changing student mix in terms of age may well lead to

demands for different kinds of education services. To meet these demands, resources may have to be shifted to more nontraditional programs and services if the rate of growth of state expenditures does not change in the intermediate term, or the state's priorities for funding postsecondary institutions do not change.

In part II, "The Planning Process, Values and Goals," the planning process is defined as active and continuous, subject to review and revision annually. The Commission plan itself covers the entire spectrum of postsecondary education in California--the three public segments, the independent colleges and universities, the private vocational schools, and adult education.

The plans of action in part III delineate the steps which will be taken in each of these priority problem areas.

Part IV, "Program and Facilities Planning," addresses the Commission's planning responsibilities in considering the "range and kinds of programs appropriate to each institution or system" and in carrying out its charge to "review proposals by the public segments for new programs and make recommendations for such proposals to the Legislature and the Governor." The mechanisms for program review were developed in cooperation with the segments and adopted by the Commission in April 1975.

The five-year plan delineates some principles which guide the Commission in the review of academic plans. These are as follows:

1. Student Demand: Within reasonable limits, students should have the opportunity to enroll in programs of study in which they are interested and for which they are qualified. Therefore, student demand for programs, indicated primarily by current and projected enrollments, is an important consideration in determining the need for a program.

2. Manpower Needs: Postsecondary educational institutions bear a responsibility for fulfillment of societal needs for trained manpower and for an informed citizenry. Manpower projections at the appropriate local, state, or national level serve as a significant determinant of the need for an existing or proposed program. As a general rule, employment prospects for graduates constitute a more important consideration in those programs

oriented toward specialized occupational fields; with certificate or associate degree programs, the local employment market tends to be more significant than in the case of graduate programs where the state and national manpower situation assumes more importance. Recognizing the impossibility of achieving and maintaining a perfect balance between manpower supply and demand in any given career fields, it nevertheless is important to both society and the individual student that the number of persons trained in a field and the number of job openings remain in reasonable balance.

3. The Number of Existing and Proposed Programs in the Field: An inventory of existing and proposed programs, compiled by the Commission staff from the plans of all segments of postsecondary education, provides the initial indication of apparent duplication or undue proliferation of programs, both within and among the segments. The number of programs alone, of course, cannot be regarded as an indication of unnecessary duplication. Programs with similar titles may have varying objectives; the regional availability of a program is a consideration; and the level of instruction is a factor. In general, an attempt is made to evaluate each

program in relation to all other programs in the subject in order to ascertain if the program under review represents a wise use of public resources.

4. Total Cost of the Program: The relative cost of a program when compared with other programs in the same or different program areas and, if applicable, when compared with like programs offered by other segments constitutes another criterion in the program review process. Included in the consideration of costs is the number of new faculty required and the student/faculty ratios; and the equipment, library resources, and facilities necessary to conduct the program.

5. The Maintenance and Improvement of Quality: The public interest demands that educational programs at all levels be of the highest possible quality. While primary responsibility for the quality of programs rests with the institution and the segment, the Commission, for its part, is interested in indications that high standards have been established for the operation and evaluation of the program. In the process, it is necessary to recognize that a proper emphasis on quality may require more than a minimal expenditure of resources.

6. The Advancement of Knowledge: The program review process should in no way discourage the growth and development of creative scholarship. When the advancement of knowledge seems to require the establishment of programs either in new or existing disciplines, such considerations as cost, student demand, or employment opportunities may become secondary.

The Commission carries out its program review responsibilities by a) reviewing the five-year academic master plans of the segments, and b) reviewing proposals for those new programs which have not appeared on an academic master plan for at least two years or which are in subject areas of particular concern to the Commission. All other degree proposals are submitted to Commission staff for information.

The five-year plan identifies four indicators which in combination may point to a statewide excess of programs. These are:

1. Programs or program areas in which statewide enrollments are declining.

2. Program areas in which a significant number of new programs are projected.

3. Programs in which the number of graduates appears to exceed current job openings.

4. Programs which appear to be excessive in number within a geographical region.

The five-year plan also identifies three indicators of program areas requiring study and review, as follows:

1. Supply and demand imbalances.

2. Changes in professional or occupational requirements, or changes within the program areas (content, degree requirements, and similar matters).

3. Growing complexities in articulation between program levels, transfer of credits, and access.

The Commission identified two areas requiring special study on the basis of 1 and 2 above: teacher education and health professions, including veterinary medicine.

C. The Professional Context

This section describes a number of influences on the allied health planning process identified during the course of the project. They are important because student demand, cost, and decisions concerning implementation of new programs will be influenced in some fashion by each. Their impact is not limited to CSUC programs, but extends to postsecondary education inside and outside California as well.

1. Social Need

The "need" for new postsecondary educational programs is primarily determined by student demand, however calculated. To determine need in occupational-professional areas such as the allied health fields, student demand generally must be related to some concept of social need for trained practitioners. Where relating to manpower requirements, planners face the question of whether to attempt to provide for an undersupply or an oversupply. This is not a trivial issue, and serious consideration requires supporting information about other institutions' plans and programs, the areas of overlap, and the areas where cooperation makes educational sense. These data are not now routinely available to program planners.

Because the variables in any manpower needs formula are themselves subject to abrupt changes, long-range employment prospects are difficult to predict. An example of this influence can be seen in the recent history of engineering education. In the late 1960's, federal aerospace spending was reduced unexpectedly. One consequence was diminished employment prospects for trained engineers and the creation of an "oversupply." Schools of engineering in California came under tremendous pressures to cut back their output of graduates and, in some cases, to close down entirely. Engineering educators up to then had been assuming a straight line projection of need for their graduates. The shift in federal spending policy, which had not been anticipated in their planning processes, diminished the need for engineers, and many graduates could not find employment in the field in which they had been educated.

The allied health programs have not so far experienced a similar crisis. Nevertheless, they are likewise susceptible to being whipsawed as a result of changes in conditions outside the immediate setting of postsecondary education. During the course of the Health Manpower Education Project, the following externally based considerations, at least, were noted to influence the need for new allied health educational programs:

a. Governmental health funding policy (all levels);

b. Technological developments;

c. Changes in professional practice; and

d. Client needs for various health services.

2. Need for Cooperation

The issue of increased cooperation in planning and programming within and between educational segments is especially important to applied areas which are relatively expensive. Interest among educators and practitioners in improved cooperation was evident throughout the Health Manpower Education Project. The Project noted the interplay of forces outside higher education which are forcing closer relationships in allied health related planning and programming. While there are many factors, perhaps most immediate is the reduced spending of federal and state governments in support of the allied health professions. Closely related is the emergence of active, articulate spokesmen for the interests of taxpayers and consumers whose preferred formula for health care services would be "maximal coverage at minimal cost." Not incidentally, students also are becoming active as consumers in expressing concerns about the availability of job opportunities in professional and applied fields.

3. Clinic/Agency Affiliates

The definition of allied health professions in Chapter I provides for academic and practical learning experiences (practicum) in preparation for professional employment. The practicum is increasingly used in allied health and other professional preparation programs (e.g., teaching, city and regional planning, business administration, natural resources, etc.). It is a prime example of how diverse institutions can cooperate in planning and programming to serve complementary educational and professional purposes. Recent studies have stressed the joint responsibility of educational institutions and clinic/agency affiliates for the quality of the practicum experience.*

It is difficult to generalize about the length and content of practicum programs among the allied health professions because of the varying requirements set by accreditation and licensure bodies. In addition, accrediting bodies are exhibiting increased concern generally for improved integration of programs' academic and practical components. By requiring the designation of regular faculty as full-time practicum directors and specifying distance limits between educational and affiliate institutions, accrediting groups influence not just the degree of academic-practical integration but also the cost and design of the program.

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*Examples are the 1970 and 1972 Carnegie Commission studies Graduate and Professional Education, 1980 and Professional Education. The 1972 SASHEP Accreditation study also stresses this point.

Regardless of accreditation strictures, regular program faculty are obliged to attend to the prospects and problems connected with the practicum component. Evaluation of its relationship to the objectives of the educational program is a proper responsibility of the faculty, who can extend their own knowledge and appreciation of the practicum experience by spending time at affiliate sites observing student performance and carrying out other professional activities. The Project noted with approval the growing tendency among regular faculty to involve students in evaluating the effectiveness of practicum arrangements.

The most immediate problem facing allied health educational planners regarding management of the practicum component is identifying available clinic/agency affiliate slots and matching them to student requirements. The Health Manpower Education Project developed and conducted an inventory of CSUC clinic/agency affiliates and available slots as a management tool for program personnel. This inventory and its contributions to resolving overall allied health planning data deficiencies are discussed in the next chapter.

A problem which promises to become more prominent is the matter of how the costs of the practicum should be borne. Due to increased costs of operation, affiliates are suggesting that educational institutions will need to accept more of the expense associated with student placements. The Health Manpower Education Project acknowledges the real problems posed by increased operating costs at many CSUC clinic/agency affiliates. It is possible, however, to accelerate some processes to avoid the loss of educationally important affiliate placement opportunities.

There are already within CSUC several systemwide allied health discipline councils organized to provide meeting forums between program faculty and affiliate personnel. Among these is also a CSUC Interdisciplinary Council of Clinical Personnel (ICCP) which has been organized to encourage systemwide interdisciplinary efforts in clinical training and operation. This group is much concerned about the effect of affiliate placement availability and cost pressures on the total educational program, and is at the center of a movement in CSUC to develop more on-campus interdisciplinary clinic facilities.

Interdisciplinary clinic facilities exist already at varying stages of development on the Fresno, Los Angeles, and San Diego campuses. A proposal for regular state funding of the Los Angeles facility is included in The California State University and Colleges' 1977-78 support budget request.

The Health Manpower Education Project review of interdisciplinary clinics found that they can be useful in reducing some of the pressures on affiliate placements for students in the allied health professions. On-campus clinics provide the advantages of close integration with the educational program and deeper involvement of regular faculty with the practicum component. Their major drawback seems to be the difficulty of securing regular ongoing funding for their operations.

Another alternative worthy of exploration is the increased use of community-based affiliates for student placement. This would increase the number of available clinical placements, and is consistent with professional concerns about needs for improved strategies of prevention in health care.

One final related issue studied by the project was the usefulness of written agreements between CSUC campuses and clinic/agency affiliates outlining educational purposes and outcomes of the practicum, liabilities of the respective parties, student selection and retention, etc. Many faculty believe agreements of this nature contribute to the educational value of the field work experience. The Health Manpower Education Project has developed a model standard agreement for systemwide consideration (Appendix D).

4. Articulation

Articulation among educational segments and institutions is a process of communication between similar programs for the purpose of facilitating transfer of students with maximum applicable credit earned and minimum loss of time and effort. The existence of the California Articulation Conference as a voluntary effort was noted in the first chapter. Specific studies of the articulation problems of allied health educational programs are rare, however.

Each of the seven occupational task forces organized by the Health Manpower Education Project analyzed specific articulation problems within their respective allied health program areas. It is significant to note that in addition to identifying its specific concerns, each task force commented on the general need for improving understanding of the relationships between educational requirements and professional mobility. In some fields, undergraduate to graduate level articulation needs to be improved as well.

On request of the CSUC Health Manpower Education Project, the Allied Health Liaison Committee of the Articulation Conference established a task force to study program articulation issues. The project has advised the Articulation Conference that, due to the complexity of the California postsecondary education system, the development of regional models might be more productive than statewide approaches.

Finally, to assist CSUC campuses in identifying needs for additional program articulation agreements, the Health Manpower Education Project has inventoried all community college allied health programs which feed transfer students to CSUC and provided the data to campus program personnel. Some articulation problems between CSUC institutions were likewise identified and brought to the attention of the faculties involved.

5. Allied Health Data Collection Capacities

From the beginning, the Health Manpower Education Project experienced difficulty in securing necessary data about allied health professions and education programs. It was discovered early that this was due largely to the lack of clear taxonomic relationship between educational programs and occupational outcomes in the allied health fields. For data collection purposes, CSUC utilizes a modified Higher Education General Information Survey (HEGIS) coding structure, a system broadly designed for management and reporting purposes, but lacking a classification system which cross-references academic discipline occupational codes for tracking the path from education to career. In addition, the HEGIS code was not specific enough to yield complete information about all allied health programs in the system. Indeed, previous CSUC surveys of health related programs have tended to underestimate their complexity and size. Early foundation work by the project, based on exhaustive manual catalog searches, indicated that the CSUC offerings in the allied health professions were more extensive than they had been estimated to be in the past. Analysis of this experience led to the conclusion of a need for an accurate CSUC health related program inventory to provide the basis for defining the actual planning base. The inventory outcomes and their relationship to the establishment and maintenance of an allied health management information system are discussed in Chapter III.

6. Legislative Enactments

Curricular planning may be subject to mandates or constraints established by government at difference levels. The Health Manpower Education Project reviewed recent federal and state legislation which will affect planning for the allied health professions in The California State University and Colleges.

At the federal level, the 1974 National Health Planning and Resources Act, PL 93-641, may be the most significant health legislation since Medicare was established. It is particularly important to the allied health professions because decision-making responsibility for health care delivery shifts in large part from national to state and local jurisdictions. Thus, allied health practitioners within designated geographic areas may become involved in planning for implementation of the Health Systems Agencies Program which will give attention to the problems of:

a. Increasing costs of health care;

b. Improved distribution of health care facilities;

c. Lack of uniform health care delivery methods; and

d. Health manpower supply and distribution.

In California, a new law, AB 1748, requiring the development of a biennial health manpower needs plan by the State Department of Health was approved in 1976. Based on the findings of the manpower plan, the California Postsecondary Education Commission is then directed to prepare a statewide health sciences education plan, also to be updated every two years.

Neither of these bills has yet been fully implemented. In the case of the state legislation, particularly in developing the required statewide education plan, The California State University and Colleges will make available the full output of its Health Manpower Education Project to assist other agencies in meeting their responsibilities. These materials may also be useful to those charged with implementation of the federal statute.

7. National Professional Accreditation

Accreditation is the process by which a designated body evaluates and recognizes a program of study or an institution as meeting certain predetermined qualifications or standards.* It is an important factor in the employability of graduates and often in securing grants from external funding sources.

All 19 campuses and The Consortium of The California State University and Colleges are regionally accredited by the Western Association of Schools and Colleges. In addition, a specific policy of the Board of Trustees dating back to 1968 directs each campus to seek accreditation of curricular programs in areas where recognized national professional accrediting bodies exist. This policy was further clarified in 1969 by the Board's Committee on Educational Policy which expressed the view that "departments should not move into the master's field until a solid undergraduate program has been established and is in fact accredited, provided national professional accreditation is available in the subject field." The Office of the Chancellor reports periodically on programs available for accreditation, those accredited, and those not accredited. A recent count of accredited allied health programs shows that some 29 campus programs, including nursing, currently are nationally accredited by six recognized agencies. The actual number of programs is somewhat higher since some accreditations are for fields where a campus offers more than one specific program and/or undergraduate as well as graduate degrees. Overall, there are 148 professionally accredited programs in the system.

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*The definitions of accreditation, certification, licensure, and relicensure are from SASHEP, 1972.

The influence of accrediting bodies on the length and nature of the practicum experience was noted in the section on clinic/agency affiliates. Because the standards and regulations of these groups have implications for curricular content and instructional resource utilization, the Health Manpower Education Project reviewed their relationships with CSUC allied health programs. The literature available, such as the 1972 Study of Accreditation of Selected Health Educational Programs, (SASHEP), focuses on structural problems of the accreditation process such as financing and overlapping responsibilities among organizations. These internal difficulties, apparently, are keeping many of the organizations from exercising the kind of positive national professional leadership needed in many allied health professions, such as systematically disseminating information on pertinent developments to educational program planners.

Whatever the individual and collective conditions of the accrediting groups may be, however, they do exercise important influence in CSUC curricular matters. Unfortunately, the reverse is not true. For example, only three campuses are members of the Society of Allied Health Professions which has a total membership of more than 170 institutions nationally. The Health Manpower Education Project believes that active participation by allied health professions faculty in their respective national and state organizations is important to the well-being of the system's programs and ought to be encouraged at all levels.

8. Certification and Licensure

Certification is the process by which a non-governmental agency grants recognition to an individual who has met predetermined qualifications. Licensure is the process by which a governmental agency grants permission to an individual who has met predetermined qualifications to engage in a given occupation, use a particular title, or grants permission to institutions to perform specified functions.

Certification activities are generally sponsored by the same professional associations which conduct counterpart program accreditation. Accreditation and certification may therefore be seen as complementary screening mechanisms for assurance that minimum quality standards are met. Both are under professional sponsorship and control, and most certifying agencies allow only graduates from accredited programs to take certifying examinations. The Health Manpower Education Project is concerned that professional organizations which are responsible for administering certifying examinations deal with the problem of equivalency and proficiency examinations for individuals who have not graduated from accredited institutions. The State of California currently licenses health and related professionals through the Department of Consumer Affairs and the California Department of Health. Complete responsibility will be shifted to the Department of Health in July 1977.

While regulation of occupations through public licensing by states was originally intended to protect consumers from dishonest practitioners and to promote quality performance, many current licensing practices make it difficult for some qualified people to obtain the necessary credentials to practice their profession, thus limiting the number of individuals in the field. Reforms in the areas of administrative responsibility, standards, and continuing education requirements for relicensure have been suggested to ease restrictions in supply and mobility of health professions workers.

9. Relicensure and Continuing Education

Continuing Education in California takes on particular importance due to the current intense interest of the California Legislature in the general question of continued professional competency.* The California Senate Committee on Business and Professions has advocated continuing education as a part of the relicensure process and has endorsed the idea that acceptable performance in continuing education be mandatory for the relicensure of providers of health care.**

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*A Coordinated System for Continuing Education, March 15, 1976, San Fernando Valley Health Consortium, Inc., and the Coastal Region Health Consortium, Inc.

**California State Legislature, Report on Continuing Education, Senate Committee on Business and Professions, Sacramento, California, 1973.

CSUC Continuing Education includes extension, summer session, and other self-supporting instructional programs. By state and Trustee policy, the costs of instruction in any continuing education offering are covered by fees charged the participants. A major element of continuing education is to provide educational experiences which are needed by employed or practicing professionals wishing to upgrade knowledge and skills, improve career mobility, or secure relicensure.

Specific recommendations for continuing education programs, credit and non-credit, have been made in the individual occupational specialty task force reports. In many cases, examples of particular courses or programs of study have been cited as areas of need for continuing education development. There is general perception of a need to further encourage concurrent continuing education enrollment in regular campus courses. This practice, although currently authorized, is viewed by the task forces as potentially an important, but underutilized, continuing education resource.

CHAPTER III. IMPROVING THE CALIFORNIA STATE UNIVERSITY AND COLLEGES PLANNING CAPACITY IN ALLIED HEALTH EDUCATION

This chapter discusses methodologies developed by the Health Manpower Education Project to improve the capacity of The California State University and Colleges system to plan for its program needs in the allied health fields. Inventories of these programs and their clinic/agency affiliates, building blocks for a specialized management information system, are described, as is the system itself. Some of the improvements which could be expected in the CSUC system's allied health planning capacity as the result of implementation of such a management information system are also outlined. Finally, manpower projections in the seven selected occupational families were made during the course of the Health Manpower Education Project and are presented here in summary form.

A. Review of Academic Programs

In the very early stages of the Health Manpower Education Project, it was clear that to establish a planning base, a complete inventory of the system's instructional effort in the allied health areas would be required. The project, therefore, includes a listing of all existing and planned health and health-related instructional programs in The California State University and Colleges together with information on their size and capacity. This was also an early step in the development of data fields for a management information system.

Information for academic year 1974-75 was obtained with the assistance of the campus coordinators and was subsequently updated to include information for 1975-76.

The taxonomic problems encountered during this process helped to highlight some of the difficulties in defining and tracking the allied health fields. Three major sources of terminology were studied: CSUC academic program designations; occupational titles; and occupational families. There was duplication and overlap within each of the three categories, which in many cases created difficulty in establishing the relationships between specific educational programs and the particular occupation or occupations into which they prepare students for entry. One important outcome of this process has been to clarify many of these relationships.

The criteria established for inclusion of a campus program in the survey were keyed to the need for clarification of the linkages between educational preparation and occupational outcome. In order for an educational program to be reported by a campus, it had to be one which, in the perception of the faculty, trains individuals for a health or health-related occupational goal for which a bachelor's or higher degree is required, and which includes a substantial practicum or field work component in a clinic or agency setting. Thus, a basis was established to compare the educational institutions' perceptions about employment outcomes against those of potential employers, the clinic/agency affiliates, about appropriate educational preparation.

The final academic program data are displayed both by campus and by occupational family. For each program, the inventory presents data on terminology, occupational family, occupational title, degree or certificate offered, operational or planned status, degree or certificate-granting capacity, degrees or certificates granted, enrollment (head count and full-time equivalent), and length of required practicum.

Summary results for the existing seven selected occupational groups by level are shown in the following table:

Table III-A

Occupational Group	Total No. of CSUC Programs	Bachelor's Degree Programs	Master's Degree Programs	Credential or Certificate Programs
Occupational Therapy	2	1	1	
Physical Therapy	3*	3		
Medical Technology	23	17	6	
Speech Pathology/ Audiology	33	13	10	10
Health Administration	7	5	2	
Environmental Health/ Sanitation	11	9	2	
Dietetics	14	11	3	—
	93	59	24	10

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*In addition, four pre-physical therapy programs are offered.

According to the campus responses, the total number of academic programs in these groupings is projected to grow to 127 by 1980.

The overall results for existing programs in all 15 of the occupational families show a total of 211 separate academic programs dividing into 106 bachelors, 84 masters, and 21 credential or certificate programs. If responses for the nursing and nursing-related fields were added, then the system total would rise to 245 programs.

B. Clinic/Agency Affiliates

The availability of sufficient slots for placement of students in clinic/agency affiliates to complete their practicum experiences emerged in several fields as a pressing problem. Therefore, providing for improved utilization of these opportunities was given high priority by the Health Manpower Education Project. Again, in order to define the scope of the problem, it was necessary to identify the CSUC clinic/agency affiliates, their capacities for accepting placements, and what problems they face (see Chapter II). Additionally, information about clinic/agency affiliates was needed to improve understanding of the linkage between academic preparation and occupational outcomes.

This information process was conducted in two phases. First, with the assistance of the campus coordinators, a preliminary inventory of clinic/agency affiliates was prepared and carefully checked by the campuses for errors. Second, using the refined inventory, additional program information was obtained.

Of 2,170 affiliate programs inventoried during the first phase, 1,316 were determined to be linked to the academic programs identified in that inventory. These 1,316 programs represent 1,571 clinic/agency sites due to multiple use of some affiliates by CSUC campuses.

C. Summary Specifications for an Allied Health Manpower Education Management Information System

The difficulties experienced in securing high quality data specific to the planning needs of allied health programs in The California State University and Colleges have been mentioned elsewhere. The system at present has only a limited capacity to identify the number, type, enrollment, and productivity of the allied health offerings in its overall curriculum and to monitor the preparation of students for allied health professions by each academic program. These deficiencies may be in large part remedied by the establishment of a special management information system, such as has been conceptualized under the auspices of the Health Manpower Education Project.

The basic concept of the proposed system is to provide complete data to planners on all designated allied health programs by linking the appropriate elements of existing CSUC data bases to create program, clinic/agency affiliate, and student data files. Few additional inputs beyond those readily available at present would be required. These inputs, which would require some preliminary developmental work before they could be linked to the system, are mainly related to student data.

The remainder of the needed inputs can be extracted from the CSUC Enrollment Reporting System, Allotment Expenditure Ledger, Academic Planning Data Base, Space and Facilities Data Base, and Campus Personnel System. Charts III-A and III-B show the linkages and inputs from the existing data bases to the proposed system.

With the new data base, CSUC allied health planners would be able to accomplish the following tasks:

1. Identify all health and health-related instructional programs on CSUC campuses;

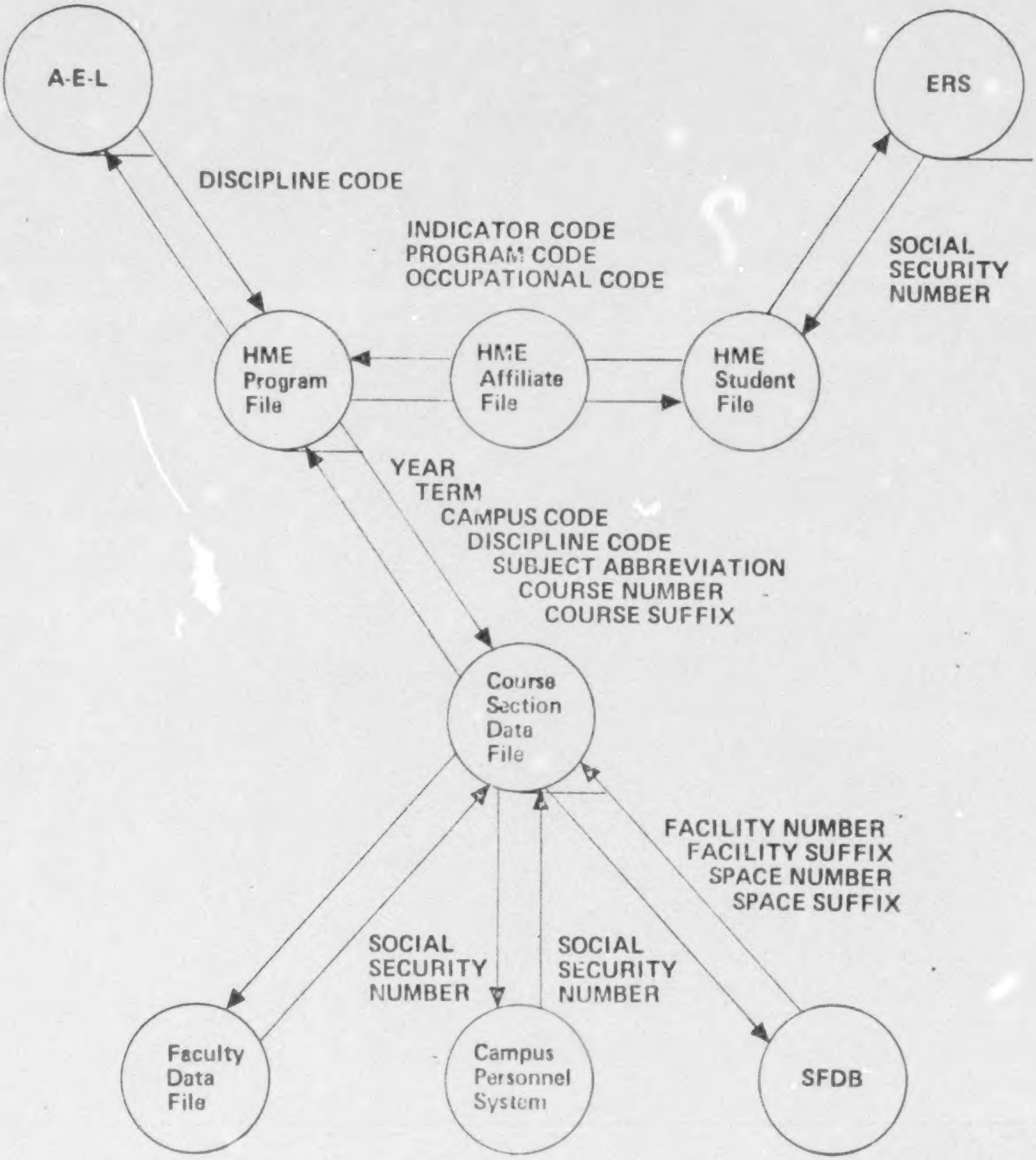
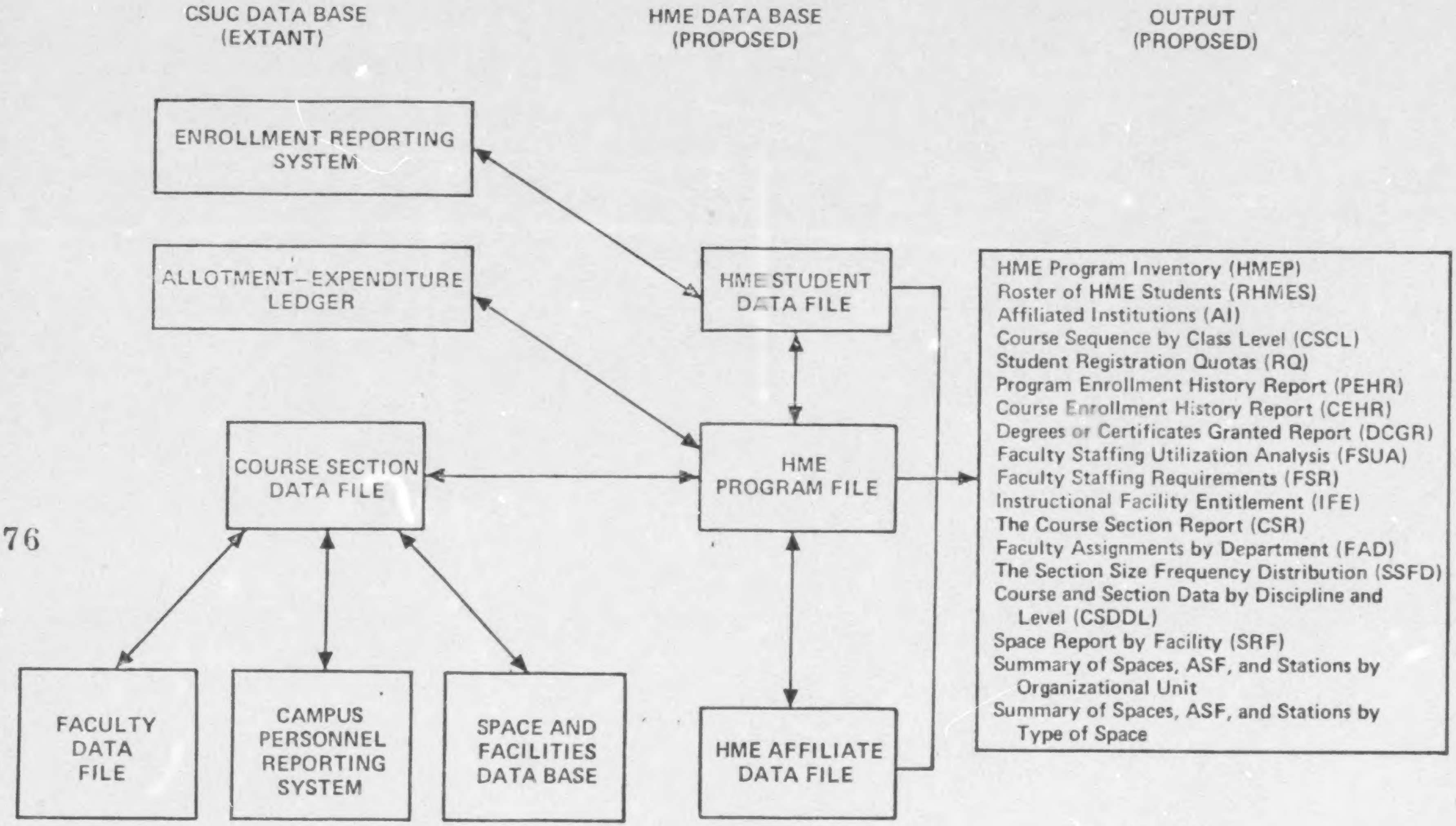

A-E-L
ERS
DISCIPLINE CODE
INDICATOR CODE
PROGRAM CODE
OCCUPATIONAL CODE
SOCIAL SECURITY NUMBER
HME Program File
HME Affiliate File
HME Student File
YEAR
TERM
CAMPUS CODE
DISCIPLINE CODE
SUBJECT ABBREVIATION
COURSE NUMBER
COURSE SUFFIX
Course Section Data File
FACILITY NUMBER
FACILITY SUFFIX
SPACE NUMBER
SPACE SUFFIX
SOCIAL SECURITY NUMBER
SOCIAL SECURITY NUMBER
Faculty Data File
Campus Personnel System
SFDB

CHART III-A

LINKAGE OF ALLIED HEALTH MANPOWER EDUCATION MANAGEMENT INFORMATION SYSTEM TO EXISTING CSUC DATA BASES

CHART I-B

HEALTH MANPOWER EDUCATION MANAGEMENT INFORMATION SYSTEM


CSUC DATA BASE
(EXTANT)
HME DATA BASE
(PROPOSED)
OUTPUT
(PROPOSED)
ENROLLMENT REPORTING SYSTEM
ALLOTMENT–EXPENDITURE LEDGER
COURSE SECTION DATA FILE
FACULTY DATA FILE
CAMPUS PERSONNEL REPORTING SYSTEM
SPACE AND FACILITIES DATA BASE
HME STUDENT DATA FILE
HME PROGRAM FILE
HME AFFILIATE DATA FILE
HME Program Inventory (HMEP)
Roster of HME Students (RHMES)
Affiliated Institutions (AI)
Course Sequence by Class Level (CSCL)
Student Registration Quotas (RQ)
Program Enrollment History Report (PEHR)
Course Enrollment History Report (CEHR)
Degrees or Certificates Granted Report (DCGR)
Faculty Staffing Utilization Analysis (FSUA)
Faculty Staffing Requirements (FSR)
Instructional Facility Entitlement (IFE)
The Course Section Report (CSR)
Faculty Assignments by Department (FAD)
The Section Size Frequency Distribution (SSFD)
Course and Section Data by Discipline and Level (CSDDL)
Space Report by Facility (SRF)
Summary of Spaces, ASF, and Stations by Organizational Unit
Summary of Spaces, ASF, and Stations by Type of Space

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2. Identify all students in the programs;

3. Identify the specific courses making up each program;

4. Identify the sequence of course offerings by class level for each program;

5. Determine the size of each program in terms of enrollments by class level and overall full-time equivalents;

6. Determine the productivity of each program by number of degrees or certificates granted;

7. Determine the faculty staffing requirements for each program;

8. Determine the instructional facilities requirements for each program;

9. Determine the costs of each program, including analysis of faculty and faculty utilization; and

10. Identify data gaps and recommend corrective actions.

Seventeen special reports not now routinely available could be produced by the new system. A list and brief explanation of each follows:

1. Allied Health Programs. Identifies the title of the program on each campus as well as its related occupational title. Program level and operational status are also generated.

2. Roster of Allied Health Professions Students. Identifies students enrolled in a program and includes social security number, student name, class level, occupational code, and progress code.

3. Course Sequence by Class Level. Provides a detailed sequential listing of all courses by class level for each health and health-related program. Includes the discipline code, subject abbreviation, course number and suffix, course title, facility type, course classification number, limit, remainder, and unit value for each course.

4. Registration Quotas. Provides a planned profile of registration quotas for each program by class level, including first- and second-year graduate students.

5. Program Enrollment History Report. Provides a display of the historical full-time equivalent students for each allied health program by term and level of instruction.

6. Course Enrollment History Report. Reports the enrollment in each course section for selected years as well as descriptive data about each course section. Data include the discipline code, subject abbreviation, course number, course classification, number, limit and remainder, units from and units to.

7. Degrees or Certificates Granted Report. Provides information on the number of degrees, or certificates granted, and projected productivity for selected years.

8. Faculty Staffing Utilization Analyses. Compares the number of full-time equivalent faculty (FTEF) used in each allied health program with the number generated by CSUC faculty workload formulas.

9. Faculty Staffing Requirements. Reports staffing requirements for each allied health education program, based upon registration quotas by class level.

10. Instructional Facility Entitlement. Reports the instructional facility entitlement for present or projected programs.

11. Course Section Report. Provides data on the number of full-time equivalent students and full-time equivalent faculty for each program by level and mode of instruction.

12. Faculty Assignments by Department. Displays the instructional workload of each faculty member teaching in a health or health-related programs as reported by the campus. These data are subtotaled by department and school; a summary of faculty type (full time, part time, etc.) is also made available.

13. Instructional Data Report. Provides an estimate of instructional faculty cost per student credit unit in each faculty category by allied health program.

14. Section Size Frequency Distribution. Generates frequency distribution of class size by mode of instruction.

15. Course and Section Data by Discipline and Level. Reports selected data related to courses and sections offered in a discipline, e.g., enrollment per section, student credit hours per section, faculty contact hours per section.

16. Faculty Utilization Analysis. Analyzes the utilization rates and various types of instructional space (lecture, laboratory, clinic, activity, etc.).

17. Clinical Affiliate Supply and Demand Report. Provides planning data on student requirements for clinic/agency practicum experiences and capacities of affiliates to accommodate CSUC students.

This system would be as useful and productive as outlined because of:

1. The comprehensive nature of the data;

2. The operational or potential interface capabilities with all of the existing and operational data bases within the CSUC;

3. The use of a discipline coding system which is compatible with the National Higher Education General Information Survey taxonomy (HEGIS) code;

4. The high degree of mechanization; and

5. The systemwide accessibility through the CSUC Data Center.

The existing data files which would be integrated with the proposed system have been described and documented by the Health Manpower Education Project. This documentation includes record design, card record layout, data element dictionary, coding instructions, and procedures for updating. There is also a set of model labeling and coding procedures for selected allied health programs.

The allied health manpower education management information system was devised as a tool to assist planners, not to provide a substitute for their good judgments. Program planning and development in The California State University and Colleges are governed by an already well developed body of general policy, and the system and campuses are experienced in the use of sophisticated analytical techniques. The proposed data system extends this experience into an area where student demand, societal need, and the overall diminishing resource situation have combined to create a special series of problems and opportunities. This improved data collection and analysis capacity in the hands of skilled and experienced faculty and planners would lend itself especially well to informed program development and coordination decisions at all levels. Perhaps the most immediate improvement would be in the ability to accommodate the need for data about allocation and utilization of the increasingly scarce trainee opportunities with the system's clinic/agency affiliates.

D. Manpower Projections for Selected Allied Health Occupations

One purpose of the Health Manpower Education Project was to develop a methodology to assess the demand for certain categories of allied health manpower and to project the requirements in California through 1980.

The application of economic projections techniques was hampered by the general lack of good baseline data in the allied health fields. The large number of institutions and facilities training allied health personnel, the absence of licensure requirements in some fields, the tendency of many practitioners to shift in and out of their professions, and the ever-changing nature of the professions and their terminologies made assessment of existing and potential supply a difficult task. These are conditions which will likely continue for some time to come and will effect the quality of manpower needs projections from any source.

A projection methodology for future use was developed as a prototype. This would allow a reassessment of supply and demand should the above conditions change.

Four approaches to manpower projections were investigated. They are (1) the basic ratio approach that assumed a constant manpower requirement for a given population; (2) the modified ratio approach that took into account changes in manpower/population ratios over time; (3) the econometric approach with market in equilibrium, i.e., the supply of and demand for allied health manpower are equal; and (4) the econometric approach with manpower market in disequilibrium, i.e., the supply of and demand for allied health manpower are not equal. The following mainly summarizes the last three approaches.

1. Modified Manpower/Population Ratio Approaches

The method used in this analysis employs modifying techniques because of the disadvantages imposed by employing a simple manpower/population ratio. On the demand side the ratio method was modified to account for changing population composition, the relative prices of these types of medical care, and the income constraints imposed upon the consumer. On the supply side, the manpower/population ratio approach was modified to take into consideration the changing productivity of medical personnel, the possibility of substituting one skill category for another, and for migration of health manpower personnel.

The underlying assumption of the ratio method is that population size is the major determinant of the future manpower requirements. Current manpower requirements are calculated by multiplying the present population by a specified ratio for each of the seven skill categories. Future requirements are calculated by multiplying the projected population by the designated ratio. The adequacy of the present manpower for each of the seven skill categories can be assessed by comparing the ratio of present manpower to population with some predetermined specified ratio (for example, a ratio set by a professional standards approach).

Three separate population estimations were made, the forecasted population, as well as the population representing plus or minus one standard deviation from the forecasted level. Utilizing these data, the manpower requirements for each skill category indicated significant increases. In terms of the basic model projections, the total allied health manpower requirements show a 5.7% increase between 1975 and 1980 for the seven selected skill categories. However, this projection did not account for changes in the ratios over time. As these changes were considered, the projected increase in manpower requirements would amount to a rate of 18.6% between the base year and 1980. Table III-B summarizes the average percentage increases in the ratio of allied health manpower to civilian California population over the noted time periods. Table III-C shows the manpower projections when the ratios are adjusted to account for the increased ratio previously noted. Table III-D compares the results of the basic projections with those derived utilizing the modified specified ratios. It should be noted that the projection on the basis of the modified ratio method appears to be more realistic than that of the basic method mainly because of the fact that the former approach accounted for changes in population composition, productivity, etc.

2. Econometric Approach

An econometric approach was used to develop an effective demand model because it provides insights into the existing structure of allied health services and facilitated projections with a specified degree of certainty. An additional advantage is that government policy scenarios can be simulated after preliminary estimations are made. This approach provides a useful analytical tool when making decisions about resource allocation for most, if not all, allied health programs.

Estimating demand functions and projecting into the future is limited by the scarcity of manpower literature dealing with allied health occupational groups. The data used in this study were obtained from state, local, and federal governmental agencies and from national professional organizations.

One output was based on the labor market equilibrium. Under this assumption the wage rates and employment levels in the allied health manpower market would be such that demand for and supply of these skills will be equal. The other output was based on the assumption of labor market disequilibrium so that inequality between the actual and market-clearing wages and employment causes a surplus or shortage of allied health manpower. Table III-E displays the results of the projection based on the equilibrium assumption, while Table III-F presents the disequilibrium results.

A comparison of the projections of all the four approaches is presented in Table III-G. As can be seen from the table, for almost all the seven professions, the market equilibrium method projected the greatest increase in demand for them in the period under consideration. This results seems to be consistent with sound judgment and common sense. Within a period of several years, the fixed ratio method of projection appears to be overly simplistic and the disequilibrium model not realistic. This consideration also partially supports the projection made by the modified ratio method because this technique involves much less effort and time than the econometric methods. However, the basic ratio method should not be ignored because it is rather straightforward and easy to use for projection purposes where limited time and effort are available, and other variables are not changing significantly.

TABLE III-B

HISTORICAL INCREASE IN MANPOWER/POPULATION RATIOS

CATEGORY	Percentage Increase In Per Capita Usage	Time Period
Occupational Therapy	[a]5.03%	1970 - 1975
Physical Therapy	[b]2.61	1950 - 1973
Medical Technology	[b]4.54	1966 - 1973
Dietetic and Nutritional Services	[c]2.81	1970 - 1975
Health Administration	[b]N.C.	1970 - 1973
Environmental Health	[b]2.27	1970 - 1973
Speech Pathology & Audiology	[b]8.82	1970 - 1973

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[a] Based on data provided by the American Occupational Therapy Association.

[b] Health Resources Statistics, 1974 and 1971, national data.

[c] Based on data from the California Dietetic Association.

NC: No significant change.

Projection of California Health Manpower : 1976 - 1980 Usage Modifications

OCCUPATIONAL CATEGORY Year:	1976	1977	1978	1979	1980
Occupational Therapy					
Adjusted ratio	0.0001083	0.0001137	0.0001194	0.0001254	0.0001317
Expected	2277	2418	2569	2728	2898
Below	2268	2409	2559	2718	2887
Above	2286	2427	2578	2739	2908
Physical Therapy					
Adjusted ratio	0.00008639	0.00008864	0.00009095	0.00009332	0.0000957
Expected	1815	1885	2008	2030	2106
Below	1808	1877	1948	2023	2098
Above	1822	1892	1963	2038	2114
Medical Technology					
Adjusted ratio	0.000459	0.000479	0.000500	0.000522	0.000545
Expected	9650	10188	10757	11358	11991
Below	9612	10148	10716	11315	11947
Above	9688	10227	10798	11400	12036
Dietetic and Nutritional Services					
Adjusted ratio	0.0001525	0.0001567	0.0001611	0.0001656	0.0001702
Expected	3206	3333	3466	3603	3745
Below	3193	3320	3452	3589	3731
Above	3218	3345	3479	3617	3759
Environmental Health					
Adjusted ratio	0.0000662	0.0000677	0.0000692	0.0000707	0.0000723
Expected	1392	1440	1489	1538	1591
Below	1386	1434	1483	1532	1585
Above	1397	1445	1494	1544	1597
Speech Pathology and Audiology					
Adjusted ratio	0.0000963	0.0001047	0.0001139	0.0001239	0.0001348
Expected	2024	2227	2450	2696	2966
Below	2017	2218	2441	2686	2955
Above	2032	2235	2460	2706	2977

Health Administration (no net change projected)

TABLE III-D

Comparison of Manpower Projections: 1980 Expectations

CATEGORY	Basic Projections	Modified Ratio Projections	Net Change	Percent Change
Medical Technology	10290	11991	1701	16.5
Occupational Therapy	2271	2898	627	27.6
Dietetic & Nutritional Sys.	3265	3745	480	14.7
Physical Therapy	1853	2106	253	13.7
Health Administration	14984	14984	0	0
Environmental Health	1426	1591	165	11.6
Speech Pathology & Audiology	1948	2966	1018	52.3
Total	36037	40281	4244	11.8

TABLE III-E

ALLIED HEALTH MANPOWER

PROJECTIONS 1976-1980

EQUILIBRIUM CASE

CATEGORY	1976	1977	1978	1979	1980
Medical Technology					
Expected	10278	10709	11131	11534	11922
Below	10079	10517	10937	11518	11731
Above	10476	10914	11334	11735	12127
Occupational Therapy**					
Expected	2391	2644	2909	3169	3467
Below	2237	2490	2755	3030	3319
Above	2546	2799	3064	3339	3629
Dietetic and Nutritional Services					
Expected	3289*	3609	3950	4422	4082
Below	3022	3342	3683	4155	4615
Above	3556	3876	4217	4689	5149
Physical Therapy					
Expected	2030	2256	2522	3012	3485
Below	1695	1921	2187	3150	
Above	2365	2591	2857	3347	3820
Health Administration					
Expected	15095	15387	15747	16163	16579
Below	14138	14429	14789	15205	15621
Above	16051	16342	16702	17118	17534
Environmental Health					
Expected	1340	1381	1421	1457	1496
Below	1308	1349	1389	1426	1463
Above	1372	1414	1452	1489	1522
Speech Pathology and Audiology					
Expected	1314	1785	2355	2834	3249
Below	1168	1639	2210	2688	3103
Above	1459	1930	2501	2980	3395

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*As of May, 1976, the California Dietetic Association reports 3275

*Results based on simulation of endogenous variables and statistically significant exogenous variables.

TABLE III-F

ALLIED HEALTH MANPOWER

PROJECTIONS 1976-1980

DISEQUILIBRIUM CASE

CATEGORY	1976	1977	1978	1979	1980
Medical Technology					
Expected	10972	10420	9768	9004	8098
Below	10136	9584	8933	8169	7263
Above	11807	10279	10604	9839	8933
Occupation Therapy					
Expected	3046	2867	2680	2493	2301
Below	2894	2714	2528	2340	2148
Above	3199	3020	2833	2646	2453
Dietetic and Nutritional Services					
Expected	2984	3203	3441	3782	4112
Below	2780	2999	3237	3577	3908
Above	3188	3407	3645	3986	4316
Physical Therapy					
Expected	1569	1578	1613	1806	1979
Below	1234	1244	1278	1471	1645
Above	1901	1913	1948	2140	2314
Health Administration					
Expected	15051	15444	15880	16343	16806
Below	14181	14574	15009	15473	15936
Above	15922	16315	16750	17214	17677
Environmental Health					
Expected	1335	1303	1253	1190	1114
Below	1186	1152	1104	1041	965
Above	1485	1450	1402	1340	1263
Speech Pathology and Audiology					
Expected	1972	2189	2383	2567	2748
Below	1750	1968	2166	2345	2527
Above	2193	2411	2609	2788	2969

TABLE III-G

SUMMARY OF DIFFERENT PROJECTION METHODS FOR 1980

BASELINE POPULATION	YEAR	CATEGORY	% Δ	BASIC RATIO	% Δ	MODIFIED RATIO	% Δ	EQUILIBRIUM	% Δ	DISEQUILIBRIUM
9740	1975	MEDICAL TECHNOLOGY	5.6	10,290	23.1	11,991	22.4	11,922	-16.8	8,098
2150	1975	OCCUPATIONAL THERAPY	5.6	2,271	34.6	2,898	61.3	3,467	7.0	2,301
3090	1975	DIETETIC AND NUTRITIONAL SERVICES	5.7	3,265	21.2	3,745	58.0	4,882	33.1	4,112
1712	1973	PHYSICAL THERAPY	8.2	1,853	23.0	2,106	103.6	3,485	15.6	1,979
14,181	1975	HEALTH ADMINISTRATION	5.7	14,984	5.7	14,984	16.9	16,579	18.5	16,806
1318	1973	ENVIRONMENTAL HEALTH	8.2	1,426	20.7	1,591	13.5	1,496	-15.5	1,114
1780	1972	SPEECH PATHOLOGY AND AUDIOLOGY	9.4	1,948	66.6	2,966	82.5	3,249	54.4	2,748

CHAPTER IV. FINANCING ALLIED HEALTH EDUCATION PROGRAMS

A. Basic Considerations

General state policy and specific Board of Trustee policy have directed special attention since 1971 toward what are referred to as "high-cost programs." The primary factors affecting program cost are faculty and facilities requirements, both of which are determined in The California State University and Colleges by formulae which are "driven" by student enrollment. Other factors are library and equipment needs.

Since the 1971-72 fiscal year, the state has budgeted for instructional faculty positions in the CSUC on the basis of systemwide student faculty ratios (SFR). Currently, the system is budgeted at an SFR of 17.8:1. Within that instructional resource base (1 full-time faculty position to each 17.8 full-time equivalent students), adjustments may be made to meet the overall requirements of the program mix on each campus. Programs which are taught primarily by lecture method, such as the liberal arts and social sciences, tend to have a higher reported SFR than those with a greater proportion of laboratory or supervised instruction, such as in the allied health professions. Thus, programs taught primarily via lecture method are a good deal less expensive than those taught in other modes.

Among the characteristics common to allied health programs are student-faculty ratios lower than the overall institutional ratio and a need for relatively expensive laboratory facilities to support instruction. Therefore, this special in-depth study of allied health programs in The California State University and Colleges has been responsive to a generalized institutional concern as well as the specific professional concerns noted in the second chapter of this report.

For several years CSUC, along with many other educational institutions, has been experiencing a slowing in enrollment growth and a trend toward shifts in enrollments from the less costly liberal arts to the more costly applied fields. It has been estimated that since 1973 the enrollment shifts out of disciplines relying primarily on the lecture mode of instruction into the applied areas have resulted in a deficit systemwide of more than 135 faculty positions needed to staff existing programs at existing levels. Thus, there has been a loss of a good deal of flexibility in resource allocation that used to be enjoyed by the campuses. It may also be concluded fairly that existing staffing allocations do not necessarily recognize explicit programmatic criteria for any area.

The California State University and Colleges has developed a possible solution to many of the deficiencies in the manner by which faculty resources are provided. A faculty staffing system has been proposed which uses the two course characteristics of mode of instruction (e.g., lecture, laboratory, supervision) and level of instruction (lower division, upper division, graduate) as objective determinants of faculty need.* If this approach is funded by the state, some of the past losses due to enrollment shifts may be reversed, and there can be better assurance that instructional programs are staffed in a manner that reflects their particular curricular structures. Without doubt, allied health programs, with their many laboratory courses and supervised instruction elements, would benefit from the proposed approach.

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*Report of the Technical Advisory Committee on Faculty Staffing, Office of the Chancellor, March 1975.

The foregoing properly focuses on the basic program cost considerations which affect all curricula in the system. It is the position of the Health Manpower Education Project that a single approach to faculty staffing which makes provision for particular program needs related to the curriculum is preferable for the CSUC to a series of individual, perhaps incompatible, approaches for different kinds of programs. This position is reflected concretely in the proposed management information system which is designed for compatibility with other existing CSUC data bases, particularly the Academic Planning Data Base and the Space and Facilities Data Base, so that accurate program cost analyses may be made.

B. Characteristics of Allied Health Education Programs Affecting Costs

The Health Manpower Education Project dealt with a number of program-related factors which influence the costs of offering allied health professional programs. In particular, the cost implications of clinic/agency affiliate relations and accreditation are briefly discussed in this section.

As noted in Chapter II, the proper locus of responsibility for the costs of the traineeship experiences provided in clinic/agency affiliates facilities is an issue that has been raised by these affiliates. To date, these costs have been borne as a rule by the clinic/agency affiliates. However, some affiliates are experiencing pressures in their costs of operation which are expected to intensify with time, and which in turn are creating pressures for CSUC to assume a share of these particular costs. Given the importance of the practicum component in allied health curricula, and the impaction in the availability of trainee experiences, the campuses cannot afford to let their relationships with the affiliates lapse without acceptable alternatives (e.g., on-campus interdisciplinary clinics). Therefore, it can be anticipated that there will be a future rise in the costs to CSUC of allied health programs as a result. The degree to which this is anticipated and provided for will make the difference between orderly accommodation to changed conditions and the dislocations of accommodation to crises.

The regulations and standards of professional accrediting bodies influence the instructional costs of allied health programs also. These influences are documented in the task force reports for the seven selected occupational areas. Trustee policy, as noted in Chapter II, encourages the campuses to seek accredited status for programs in areas where recognized national organizations exist.

If the proposed management information system for the allied health professions is implemented, then it would be possible to estimate the actual number of accreditable programs and the instructional resource implications overall and by program. However, at present it is not possible to do so with a reasonable degree of accuracy.

C. Maintenance of Educational Quality Under Conditions of Diminishing Resources

The Health Manpower Education Project was directly concerned with the problems of maintaining program quality under the conditions of diminishing instructional resources described in the first section of this chapter. While the most direct solution is probably to be found in the proposed method of faculty staffing described earlier, there is as yet no assurance that it will be accepted, either fully or partially, by state fiscal control agencies. In the interim, there are measures which can be employed to extend the available educational resources of the system.

Cooperative or consortial programming among institutions can be developed regardless of fiscal conditions. By combining complementary academic strengths, allied health educators from different campuses can create programs and opportunities for their students which might otherwise be unavailable. Of course, care must be taken to guard against too much diffusion of resources and responsibility which would weaken programs to cafeteria-style collections of unrelated units. Cooperative programming must make educational sense in order to constitute a true educational gain. There is already much positive momentum in California along these lines. It can be expected to accelerate in the foreseeable future.

The need for improved program management techniques and mechanisms at all levels of responsibility was carefully reviewed by the Health Manpower Education Project. Within The California State University and Colleges, it is the Office of the Chancellor that plays the key role in identifying systemwide problems and developing common solutions. Prior to the inception of this project, problems in the allied health fields were not dealt with by a specific entity. Even though the project is completed, if the momentum it has generated is not to be lost, there will need to be an organizational unit to deal specifically with allied health.

There are different modes of organizing and administering the allied health programs on the campuses. In many cases, however, programs cut across different departments, divisions, and schools making effective coordination and resource utilization a difficult task. It is clear that there is no one "best way" for all campuses to organize their efforts; however, with a functioning allied health management information system, each campus would have at its disposal the data necessary to analyze functional and programmatic relationships. With local circumstances more fully understood, needed adjustments in the administrative and coordinating arrangements for allied health educational needs would also be measurably improved.

Finally, a comment about the role of the system's self-supporting continuing education programs in servicing the needs of allied health professionals is in order. Continuing education is an especially valuable resource for providing services to practicing professionals who need specialized coursework for purposes of upgrading their skills, improving their career mobility, and meeting relicensure requirements. While the costs of such courses must, by state and Trustee policy, be paid by those enrolled, quality is ensured by the high proportion of regular CSUC faculty who teach them. In addition, the continuing education program is responsible for much of the system's activity in so-called nontraditional modes of delivery (e.g., electronic media, parallel instruction, self-directed study, etc.). CSUC external degree programs, taught at off-campus locations throughout the state where need is documented, can provide to professionals what would be important services otherwise unavailable in the more remote regions of California.

CHAPTER V. IMPLEMENTING A PLANNING METHODOLOGY

A. Planning Methodology

The methodology proposed for planning and coordinating allied health programs in The California State University and Colleges encompasses the following six activities:

1. Planning new programs and curricula;
2. Reviewing existing programs and curricula;
3. Planning and allocating resources;
4. Placing students in clinical practice sites;
5. Placing graduates in jobs and following up on their progress; and
6. Planning grant proposals.

The first activity, planning new programs and curricula, includes long-range master planning as well as planning for the implementation of individual allied health curricula. It should begin with a study of regional and national requirements in a particular profession. Identification of these requirements can be accomplished in several ways, but should include inquiry to the appropriate professional society for its analysis of available data and future opportunities; analysis of existing legislation, both state and federal, governing professional certification; and study of needs within the immediate service area of the campus, similar programs in the area, and evaluation of student enrollment potential. At the same time, applicable accreditation, licensure, and certification requirements need to be examined with reference to the personnel and other support resources required to initiate and sustain the instructional program.

Once the service area needs and potential are determined and the various other requirements identified, present and potential campus support capability must be evaluated to determine if the program under study can be developed locally. Existing and projected budgetary support for the proposed program must be considered within the overall campus priority system for program development and maintenance. If the information produces a positive picture, then the program concept can be entered on the long-range academic master plan for future implementation.

After a program is on the academic master plan, curriculum planning to prepare for implementation must be initiated by faculty in a timely manner so as to result in coordinated scheduling of courses and enrollment of students. In order to accomplish this, a detailed curriculum needs to be developed and approved by faculty and administrative groups on the campus. In most cases, it will be useful to form an advisory committee of professionals from the surrounding region to assist in the development of specific courses, the identification of faculty expertise required, and the equipment and facilities that will be needed to initiate and sustain the program. This should also include an evaluation of other programs in the region from which students may transfer into the planned curriculum. Potential articulation problems should be identified and attended to before they occur.

A study of employment opportunities, regional and national, needs to be conducted, placing particular emphasis on the employment potential projected to the time the first graduates will emerge from the program.

With the information so far derived, the minimum on- and off-campus facilities required can be determined.

Where clinical or field experience is required, tentative agreements with agency affiliates need to be developed and the supervising staff must be identified and made known to the program planners. Library resources must be examined and budgetary priorities established to make up for any deficiencies in the holdings needed for the program.

Only after information is gathered, curriculum approved, facilities and equipment determined to be adequate, and faculty and support personnel identified, can students be enrolled. Such long-range master planning and detailed curriculum and support development procedures are needed to be reasonably assured of a viable program which will ensure the expertise of graduates entering the profession.

Within its procedures for long-range planning and curricular development and implementation, the campus has provided an educated guess on the potential success of a program. The critical step in the second activity, program review, is the measure of success, however defined, based on actual operation. It should be recognized at the outset of any evaluation process that the number of student majors is not, in itself, a valid measure of success. One important criterion of a successful program obviously would be the number of graduates who achieve professional licensure or certification.

Other yardsticks may be applied both inside and outside of the educational institution. For example, on-the-job performance evaluations and educational preparation should be somehow related. Or, program success may also be measured by comparison with the total program of an institution and its immediate and longer range priorities.

The efficiency of the curriculum needs to be determined, especially during periods of budgetary restrictions. Class size and student/faculty ratio are easily determined and relate directly to budgetary concerns. Faculty workload, such as number of contact hours in a formal classroom setting, number of different course preparations required in a given term, and the availability of clerical and technical assistance, are all measures which can assist in the determination of efficiency and are useful for purposes of comparison with campus priorities.

A critical factor in assessing allied health programs is the status of faculty development. In a field which changes so rapidly, faculty must be continuously updated to assure that students are prepared to enter the profession as it exists at the time of graduation.

Surveys of graduates should be conducted regularly to determine if they are employed in the fields for which they were prepared. Employers should be surveyed to determine their evaluation of graduates' capabilities. There might also be consideration of surveying clients with whom the graduates have been in contact for a different perspective of program success.

Each program should conduct a periodic self-study, not only for accreditation purposes, but to determine if revisions in long-range plans are needed. This self-study should include a review of local and national trends in the profession and related fields. Another function of the study is to identify areas for which continuing education programs should be developed to serve practitioners.

Substantiation of program requirements should rest, wherever possible, upon carefully assembled objective data. Qualitative data and expert judgment, while necessary and appropriate at times, should normally be avoided as the sole or principal justification for program requirements.

The third activity, planning and allocating resources, should be a concern from the inception of long-range planning through program implementation and maintenance. While all potential funding sources must be considered, the problems associated with federal and private funds which are provided for a limited time only are especially critical. In particular, the implications for future program support, once external funds are exhausted, are an important consideration for long-range planning.

Each program should be assigned a campuswide priority as well as a school and/or department priority. These priorities should make provision for necessary equipment purchases, facility construction and modifications, faculty, clerical and technical support, and operating expenses. During each regular budget cycle, the long-range priorities should be reassessed but not abruptly modified; it is the function of longer range planning to anticipate changes and incorporate them smoothly into the system of priorities.

Budget priorities should state the parameters within which the size of an allied health program will be allowed to fluctuate. External funds should not be allowed to expand established parameters unless there has been consideration and acceptance of the modification of the planning priority. Since the budget and planning process usually covers at least two years from start to implementation, it must be recognized that changes can occur in student demand, employment opportunities, licensure, funding, availability, state and national policy, and the general economy. The potential for such changes suggests need for program flexibility within prescribed limits.

Another factor to be considered is the rapidity with which new concepts are developed and introduced into the various areas of health care. This can require modification of available equipment and facilities as well as the acquisition of new equipment. Faculty expertise must also be maintained in the face of rapid change. There is, therefore, a need to provide mechanisms to encourage faculty to remain up-to-date in their respective disciplines.

Increased costs of providing health care are creating a larger financial burden for the patient than at any time in the past. This stems in part from a continuing rise in the number of malpractice suits and the cost of malpractice insurance. Clinics and other agencies presently providing field experience opportunities for allied health programs are beginning to ask educational institutions to provide a greater share of the costs. For example, some clinic/affiliate agencies are requiring educational institutions to provide Workers' Compensation Insurance for students, some are asking that expendable supplies be provided and some have asked for equipment maintenance costs. The budgetary implications of such costs will need to be recognized and eventually included as program support factors in budget planning.

In The California State University and Colleges, program planning falls into two general stages: academic master planning, which projects an intent to develop a new degree curriculum in the future; and program proposal, which translates intent into a curriculum proposal for implementation after approval. The process of academic master planning was discussed in some detail in Chapter II. Present CSUC practice provides for program projections and proposals to be initiated by faculty in conjunction with various campus administrative offices.

To implement a program projected on the academic master plan, a campus provides information regarding facilities, faculty, enrollments, and placement opportunities. Following Trustee approval of the academic master plan, the faculty may initiate the detailed formal program proposal, which is prepared in a common CSUC format. Included in the proposal is the curriculum, including a description of each new course, other similar programs in the state, student and resource planning data, placement opportunities for graduates, and relationship to articulation agreements.

The finished proposal is presented for review by campus faculty and administrative units. At each step, the proposal may be modified and/or disapproved. If each review at each level is positive, the campus president makes the final decision. If the president acts positively, the proposal is forwarded to the Vice Chancellor for Academic Affairs in the system headquarters for review. At this level, the proposal is evaluated on the basis of need, local capacities, and relationship to other programs in the system and state. Modifications may be suggested and are negotiated with the campus. State law, Trustee policy, and national accreditation requirements are considered as guides in program review at this level. In the allied health fields, the proposal must also be forwarded to the California Postsecondary Education Commission for review.

If reviews at all levels result in positive recommendations, the Chancellor, under authority delegated by the Trustees, approves the program for implementation. The campus then initiates the necessary courses, appoints faculty and enrolls students.

By Trustee policy, each campus program is subject to local review at least every five years. Some programs may be reviewed more frequently. The individual campus program review schedule is published in the systemwide report on academic master planning. The results of these reviews are shared with the Chancellor's Office which reviews the analyses and recommendations and provides its additional recommendations and comments, as appropriate.

The remaining planning activities are of a more specific nature than the preceding three.

Student placement in clinical practice settings begins with the inventorying of sites currently available and the development of new sites as required by existing and proposed programs. Not only must the site be characterized by slots available, location and type of program, but also by other factors such as suitability for minority or handicapped student placement, utility for cross-cultural experience, and need for bilingual ability on the part of the student. This activity continues with matching of student and appropriate site. Individual characteristics and educational experience needs will be matched with clinic environment and training offered to ensure the highest degree of success of the student in his or her field work. In order to assure the continued suitability of a site, follow-up is essential to better typify the site and to clarify the type of student who may benefit from the particular experience. This activity will involve intercampus coordination in order to make the best use of sites available, thus assuring that each student in a program, wherever located, will have an adequate site for his or her field work.

Graduate placement involves some of the same elements as field work placements. Job sites must be discovered and students with the requisite capability informed of opportunities available. It is important to this activity that careful follow-up of employers and of graduates placed be undertaken because information concerning the strengths and weaknesses of the employee's training are necessary for program review. Feedback of this sort can help to improve program offerings and the preparation of well-trained persons.

Grant proposal activity should be undertaken on a systemwide basis. Proposal development, normally a campus or individual endeavor, will become more broadly based. Information concerning available funding, deadlines, etc., will be circulated to appropriate campus persons with a request for indication of interest. From the responses, the assignment to prepare a proposal may be given to one or several individuals or to a team from several campuses. Consultation throughout the system and coordination among interested persons may lead to the preparation of one systemwide proposal or a series of complementary proposals rather than several competing proposals, although competition among meritorious competing proposals is not necessarily ruled out. In conjunction with systemwide coordination of grant-seeking effort, the federal government may be requested to require system executive officer signatures wherever several campuses comprise a system of postsecondary institutions.

B. Proposed Campus-Level Organization

Student demand for programs in the allied health areas has grown enormously in The California State University and Colleges as well as nationally. From 1972 to 1975, by a rough count, these programs grew from 50 to over 90. Further, student-faculty ratios tend to be below the systemwide average of 17.8:1. An additional problem is that allied health programs may be administered within several departments located in different schools on a given campus. In some instances, the allied health programs must compete with other programs within the same department. For example, there may be a Medical Technology program housed in a Department of Biology or a Dietetics program in a Department of Home Economics. In most of these programs, a field experience is required at a location normally beyond the campus' administrative or budgetary responsibility.

In practice, each CSUC campus has a large measure of autonomy in allocating the resources provided in its budget. Additional autonomy exists on a campus for schools and departments to operate within budgets according to their priorities. Looked at this way, campus allied health programs tend to form their own subsystem within a subsystem, inasmuch as each unit operates somewhat independently of others, whether departmental or total campus. There is, therefore, a problem of program overlap in the allied health fields due to uncertain jurisdiction. This suggests the need for modification of present campus and system administrative organization to provide a more efficient structure for meeting needs for trained allied health manpower. An assumption in developing the approach has been that it is best to make optimum use of existing procedures to encourage acceptance of proposed organizational changes. Any organization proposed to implement the methodology presented above, should be consistent with current CSUC academic master planning and program policies, and be able to perform the necessary coordinative and liaison activities.

It is proposed that on each campus and in the central office there be a staff for coordination of allied health program planning. Duties specific to each type of staff function are suggested in this and the following section. In addition, the campuses and the central office will require additional positions to support the management information system described in Chapter III.

Each campus should establish a Coordinator for Allied Health Manpower Education who would serve as a member of the all-university administrative staff and report to the Vice President for Academic Affairs. The position should be hierarchically equivalent to a school dean on campus. Depending on the size of the campus and its allied health program, there would need to be additional staff and clerical positions in support of the new function. Required funding would need to come through established procedures. Assuming funding, each campus operating allied health programs could allocate a 12-month position for such a coordinator, plus full-time clerical support. In addition, there ought to be an additional half-time coordinator position on those campuses with 200 or more allied health students enrolled in credit-granting field experience courses in four or more different affiliates. Additional support staff may be allocated at the discretion of the campus.

To support the activities of the coordinator, there should be an advisory committee composed of one representative from each allied health curriculum on the campus. Deans of schools administering these curricula could serve as non-voting ex officio members of the advisory committee. The coordinator would chair the advisory committee.

The coordinator's scope of responsibilities might include:

1. Coordinating the development of clinical or field agency affiliate agreements and the placement of students in these assignments.

2. Providing a central source of allied health data acquisition, dissemination and interpretation for the campus.

3. Coordinating the performance review of local allied health curricula.

4. Coordinating and maintaining, in cooperation with the campus research director, current information regarding allied health funding agencies, both

public and private, and assisting campus representatives in the development of grant requests.

5. Providing liaison between campus allied health program and local and regional boards, consortia, and agencies involved in preparation and utilization of allied health professionals.

6. Coordinating, in conjunction with the campus Career Planning and Placement Center, career counseling and placement for allied health professions students.

7. Coordinating the development of articulation agreements with representatives of postsecondary allied health programs in the region.

8. Advising school deans and department chairs on the need for development of new curricula or the modification of existing programs.

9. Promoting improved articulation and more joint use of courses among the allied health and supporting curricula on the local campus.

10. Coordinating the development of resource needs justification for the allied health curricula in conjunction with the appropriate schools and departments. This should include interpretation of needs to the all-university administration.

11. Providing liaison between the allied health program and the Chancellor's Office through established channels.

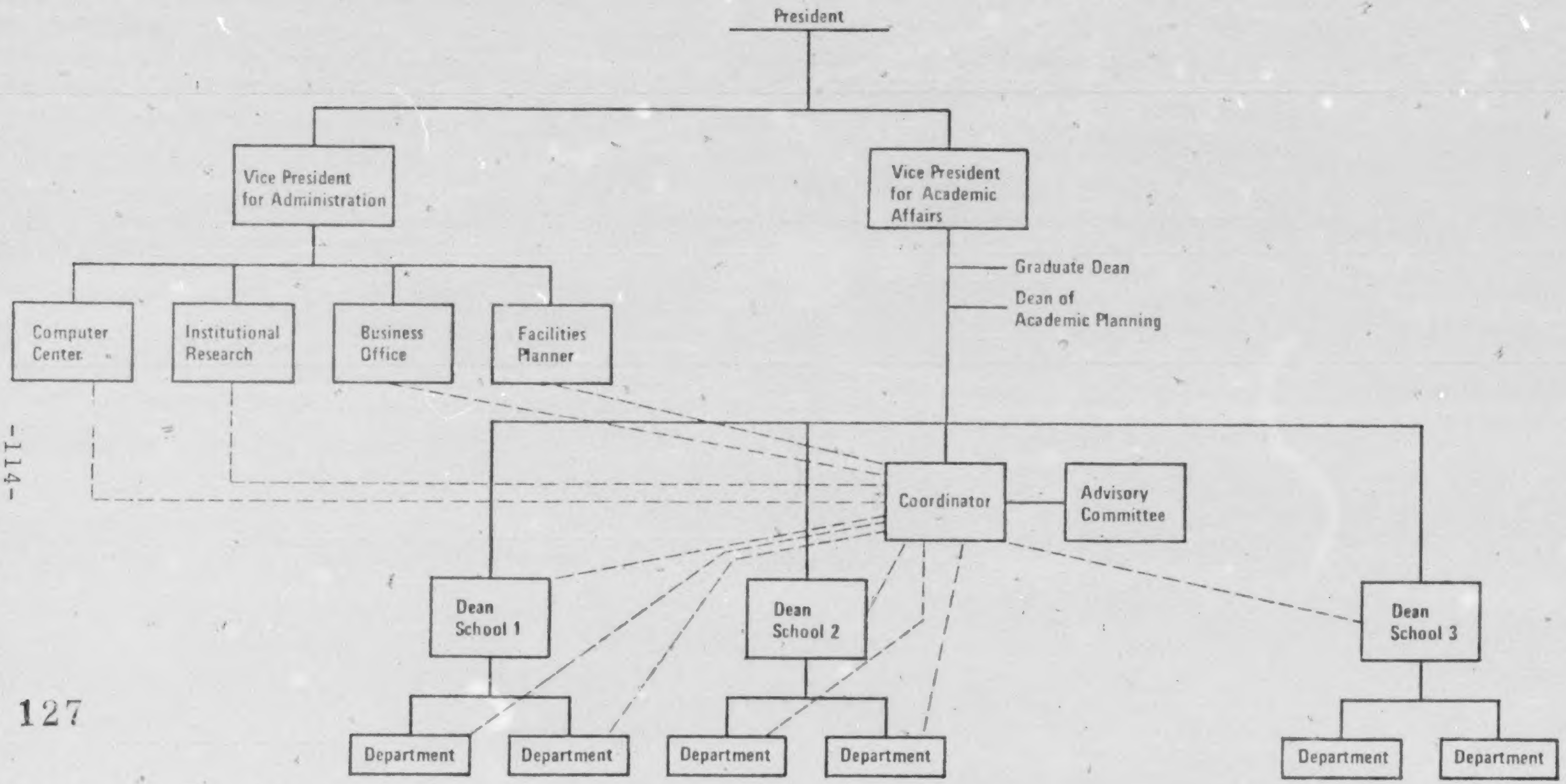
12. Serving as campus representative at meetings of a CSUC Allied Health Advisory Committee.

13. Serving as a member of the campus Deans' Council or its equivalent.

In instances where a campus has already established a school or division of allied health or its equivalent, that campus should consider what changes, if any, would be needed in order to provide for improved coordination and planning of allied health programs.

The coordinator would not be responsible for generating or allocating funds or positions, and faculty personnel matters would be determined according to established

FIGURE V–A


President
Vice President for Administration
Vice President for Academic Affairs
Graduate Dean
Dean of Academic Planning
Computer Center
Institutional Research
Business Office
Facilities Planner
Coordinator
Advisory Committee
Dean School 1
Dean School 2
Dean School 3
Department
Department
Department
Department
Department
Department

PROPOSED ALLIED HEALTH PLANNING AND COORDINATION MODEL – CAMPUS

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local procedures. However, the advice and counsel of the coordinator should prove useful to the departments, schools, and the Vice President for Academic Affairs regarding matters of faculty and budget allocations.

C. Proposed Chancellor's Office Organization

A professional staff member assigned to the Division of Educational Programs and Resources would be designated to assume responsibility for coordinating CSUC allied health programs at the system level. Clerical support staff would be provided from within the division.

The Project has noted the desire of some federal granting agencies not to allocate program support funds to campuses within The California State University and Colleges when competing proposals for the same project are received from two or more system campuses. A formal review and decision process needs to be initiated at the Chancellor's Office level to monitor submission of such proposals, identify systemwide efforts, and avoid the inefficiencies of 19 different uncoordinated efforts.

There should be an advisory committee to work with the Chancellor's Office coordinator to serve as convener of the committee. This committee would be composed of faculty and administrative representatives as well as appropriate Chancellor's Office personnel, and would assist the coordinator in the evaluation and review of allied health education matters.

The coordinator, with the counsel of the advisory committee, would be responsible for the following:

1. Maintaining liaison with Institutional Research, Physical Planning and Development, and Business Affairs regarding allied health data and support needs.

2. Assessing and interpreting data generated by the Management Information System and Academic Planning Data Base as they relate to allied health.

3. Coordinating, reviewing, and making recommendations on all allied health program grant proposals. It is strongly recommended that appropriate granting agencies be asked to accept for consideration only

those proposals to support allied health instruction from The California State University and Colleges which have the approval of the Chancellor or his designee.

4. Identifying regional and systemwide program needs and assisting campus representatives in planning to meet needs, such as:

    a. New curricula;

    b. Program size management;

    c. Modification of existing curricula;

    d. Curricula phase-out; and

    e. Statewide articulation arising out of local and regional agreements.

5. Representing system programs to external agencies, both public and private.

6. Coordinating development and approval of affiliate contracts for student field experience.

FIGURE V–B

Central Office

PROPOSED ALLIED HEALTH PLANNING AND COORDINATION MODEL –

CHANCELLOR'S OFFICE

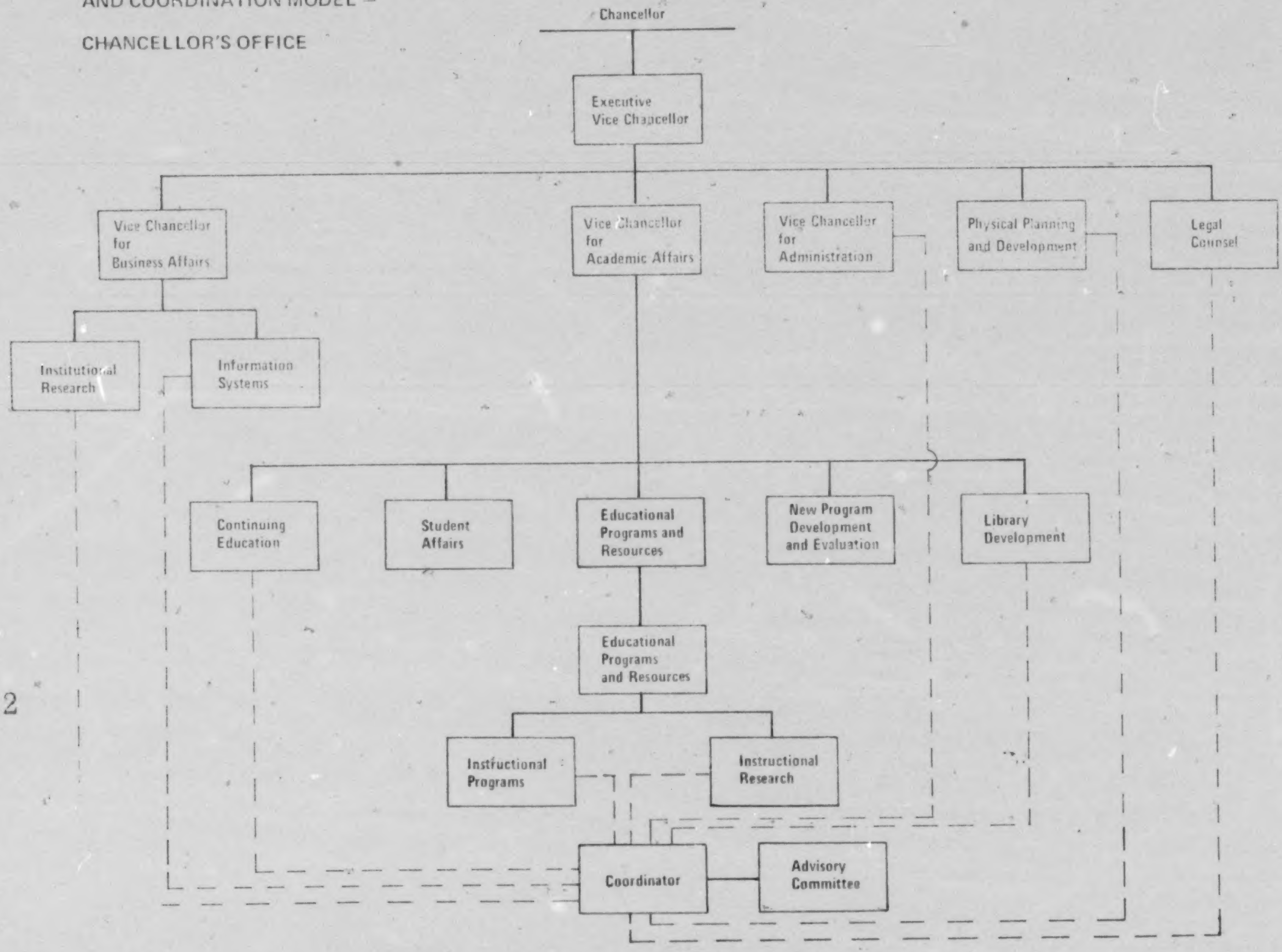
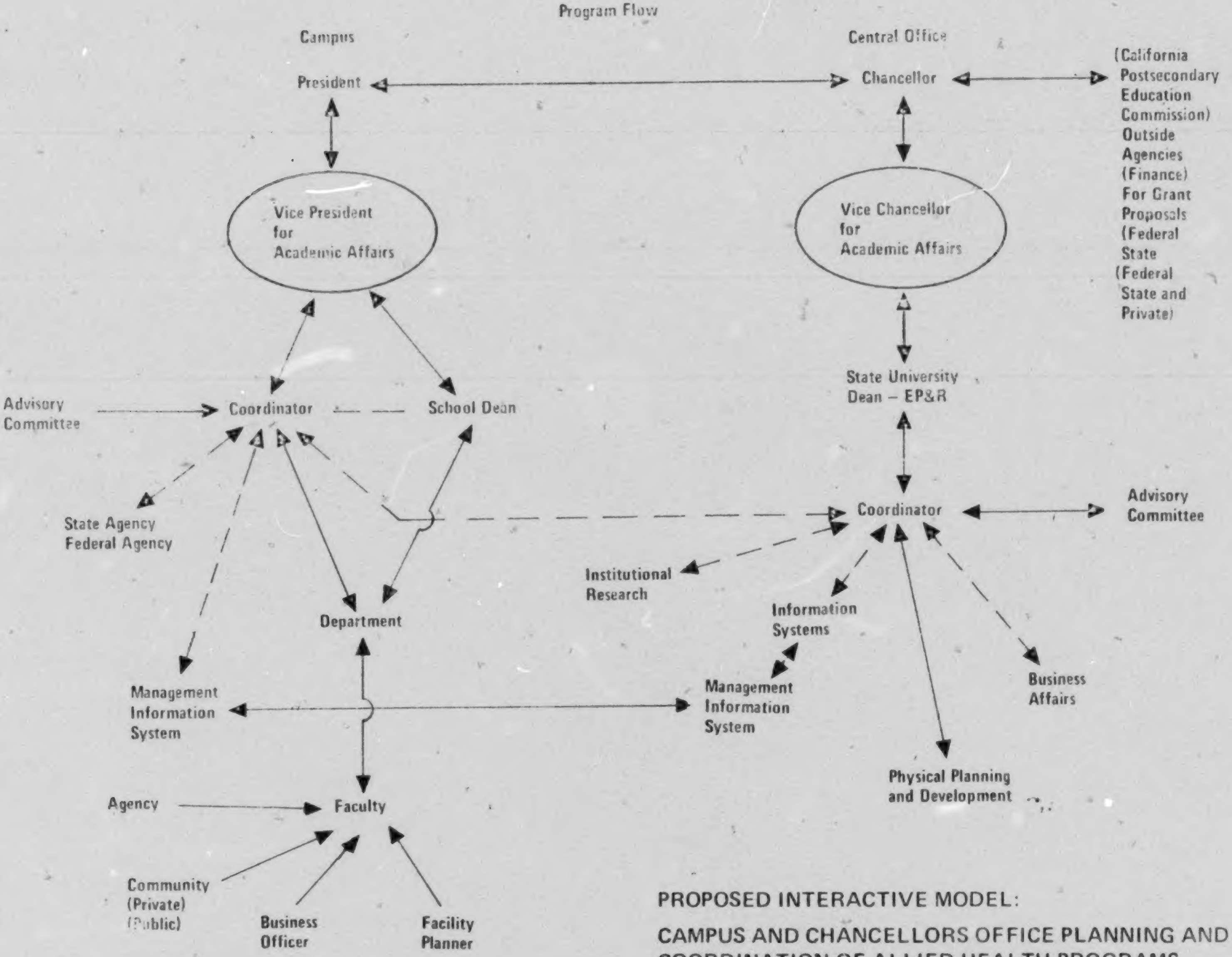

Chancellor
Executive Vice Chancellor
Vice Chancellor for Business Affairs
Vice Chancellor for Academic Affairs
Vice Chancellor for Administration
Physical Planning and Development
Legal Counsel
Institutional Research
Information Systems
Continuing Education
Student Affairs
Educational Programs and Resources
New Program Development and Evaluation
Library Development
Educational Programs and Resources
Instructional Programs
Instructional Research
Coordinator
Advisory Committee

FIGURE V--C


Program Flow
Campus
Central Office
President
Chancellor
(California Postsecondary Education Commission) Outside Agencies (Finance) For Grant Proposals (Federal State (Federal State and Private)
Vice President for Academic Affairs
Vice Chancellor for Academic Affairs
State University Dean – EP&R
Advisory Committee
Coordinator
School Dean
State Agency Federal Agency
Coordinator
Advisory Committee
Institutional Research
Department
Information Systems
Management Information System
Management Information System
Business Affairs
Physical Planning and Development
Agency
Faculty
Community (Private) (Public)
Business Officer
Facility Planner

PROPOSED INTERACTIVE MODEL:

CAMPUS AND CHANCELLORS OFFICE PLANNING AND COORDINATION OF ALLIED HEALTH PROGRAMS

7. Coordinating development of campus allied health curricula performance reviews and assisting in interpretation of results.

8. Maintaining liaison with the Division of Continuing Education on matters such as professional countinuing education needs.

   This might include *ex officio* membership on the Advisory Committee of The Consortium and other bodies concerned with extended education.

9. Maintaining liaison with state and federal agencies responsible for projecting health manpower needs. The system coordinator would be responsible for dissemination of this information to campus coordinators.

D. Management Information Systems

The Management Information System to support the planning and coordination of The California State University and Colleges' allied health programs should be integrated into system data bases now extant or in development. It would, thus, become a part of the overall management information system supporting total campus and system operations. Portions of the MIS would reside on each campus to fulfill local management needs. The remainder would be located centrally.

An important consideration in the implementation of the MIS is the structure of the computing system on which it is operated. The CSUC has a distributed network of computers. A large central batch machine is supplemented by smaller campus computers. The 15 larger campuses have medium-sized computers with standalone capabilities. Of these 15, 13 communicate directly with the central machine, while the other two campuses communicate through separate remote job entry terminals. The four smaller campuses possess small machines with minimal independent capability. Thus, they operate principally as remote terminals to the central machine. The system computing network supports both instruction and administration. As demand grows, the system is enlarged, either through augmentations of operating hardware, or through the procurement of larger machines.

The computing network concept of the CSUC allows the transfer of files and data either from campus to central office or from central office to campus. In order to facilitate the bi-directional flow of information, the CSUC has followed a principle of central development of system software. It is proposed that this principle be applied to the implementation of the MIS for allied health manpower program planning and coordination.

Implementation is seen to occur in three phases, a design phase, an installation phase, and an operating phase. Each phase overlaps its predecessor. During the design phase, system and campus software would be written and tested, utilizing three campuses as pilot sites. The software to be developed includes file management programs for the editing and updating of the elements unique to the MIS; namely, the clinical affiliate data. Additionally, programs would be written to provide access to those data elements maintained in other files.

The design phase is proposed to last nine calendar months and results in the campuses and the central office being in possession of an operational MIS. During the first three months of this phase central office personnel in the Division of Information Systems would be involved with layout of necessary software. System design would be accomplished with consultation between designers and users, both central and campus. (Consultation with users will continue through all phases, in order to assure usable output.) Following initial layout, a one-month training period would be used to bring programming personnel into full understanding of system purposes and design. The remaining five months of the design phase would be utilized to write and test all software.

The installation phase overlaps the design phase and ends 27 months after the beginning of the project. The system would be installed and tested on three campuses at a time in three-month intervals. During this phase, campus personnel would be trained in system operations and unique campus problems resolved as they are uncovered. Problems are foreseen to arise from the slight differences found in variations of hardware and software systems on the different campuses, even those with the same model computers.

The operational phase begins with the end of the design phase and lasts as long as the MIS is maintained by the CSUC. During this phase, the MIS would be operated to produce required reports and keep the files updated. In addition, job control language must be modified and tested with each change of computer operating system or with system upgrading.

E. Costs of Methodology Implementation

The proposed plan for implementing the methodology calls for a phased approach lasting 27 months. In estimating the costs, it has been assumed that each campus and the Chancellor's Office will expend one man-year of coordinator time and a like amount of clerical time. At the end of the first year, it has been estimated that 12 campuses will qualify for an additional 1/2 man-year of coordinator time, based on meeting criteria for additional help in coordinating and developing sites for clinical placements.

In implementing the Management Information System, it has been assumed that the Chancellor's Office would expend 2 man-years of programmer time during the first 24 months. For the next three months (completing the installation phase), 1-1/2 man-months of time each for systems analysis and programming would be required. Subsequently, 1/2 man-month per calendar month of each would be required for maintenance and operation. The three pilot campuses are estimated to require 3-1/2 man-months of programmer time during the six months of development and installation phases. Each subsequent campus would install the Management Information System within a three-month period and expend 1-1/2 man-months of programmer time. Each campus will require 1/4 man-month of programmer effort per month to operate and maintain the system.

Table V-A gives the manpower requirements and estimated costs for an initial three-year period. During the first year, 20 man-years of coordinator time, 20 man-years of secretarial time, 1 man-year of systems analyst time, and 2.4 man-years of programmer time will be expended. During the second year, 26 man-years of coordinator time, 20 man-years of secretarial time, 1 man-year of systems analyst time, and 5.1 man-years of programmer time will be utilized. During the third year, coordinator and secretarial time remains the same as in the second year. Systems analyst time decreases to 0.3 man-years and programmer time increases to 5.4 man-years.

Cost figures are based on the 1976-77 system budgeted average cost per man-year of $22,000. Using this estimate results in a total cost of $954,800 for the first year, $1,146,200 for the second year, and $1,130,800 for the third year.

TABLE V-A

PROJECTED MANPOWER REQUIREMENTS AND COSTS OF PROPOSED ORGANIZATIONAL STRUCTURE FOR ALLIED HEALTH EDUCATION COORDINATION

Positions	Total Man-Years		Estimated Cost($)
First Year			
Campus coordinator (1 per campus)	19.0		
Campus programmer	1.4		
Campus clerical (1 per campus)	19.0		
Total Campus		39.4	866,800
Headquarters coordinator	1.0		
Headquarters systems analyst	1.0		
Headquarters programmer	1.0		
Headquarters clerical	1.0		
Total Headquarters		4.0	88,000
Total System, First Year		43.4	954,800
Second Year			
Campus Coordinator (1.5 per large campus, 1 per small)	25.0		
Campus programmer	4.1		
Campus clerical	19.0		
Total Campus		48.1	1,058,200
Headquarters coordinator	1.0		
Headquarters systems analyst	1.0		
Headquarters programmer	1.0		
Headquarters clerical	1.0		
Total Headquarters		4.0	83,000
Total System, Second Year		52.1	1,146,200
Third Year			
Campus coordinator	25.0		
Campus programmer	4.8		
Campus clerical	19.0		
Total Campus		48.8	1,073,600
Headquarters coordinator	1.0		
Headquarters systems analyst	0.3		
Headquarters programmer	0.3		
Headquarters clerical	1.0		
Total Headquarters		2.6	57,200
Total System		51.4	1,130,800

CHAPTER VI. CONCLUSION AND MAJOR RECOMMENDATIONS

This final report of the Health Manpower Education Project should make note of the fact that the Project has been more than a narrow technical effort. The Project has been as much a process as a product. It has been a process which engaged the attention of hundreds of concerned and dedicated California State University and Colleges faculty and staff in a critical self-examination of their places in a highly valuable, highly complex professional arena. It has been a process that brought people with similar professional problems from different organization bases together to talk about those problems and to resolve to do something about them. This report alone cannot adequately recognize the contributions of the many people from diverse educational institutions and segments, all areas of state government, local governments, professional practice, and voluntary organizations who answered a call to work together to improve the educational preparation for their professions and, consequently, to improve their professions. This brief note is to acknowledge the involvement of so many and to express the appreciation of the project staff for their good thoughts, contributions, and work.

There are many more recommendations from the Health Manpower Education Project than can or should be presented in a summary report. Each occupational task force, committee, and conference associated with the project has been responsible for the development of many findings and recommendations related to aspects of the overall concern. However, the recommendations presented in this chapter will be limited to those which are most fundamentally related to the goals and tasks for the project outlined in the first chapter and described throughout this report.

A. Some General Considerations

It is important to keep in mind that the environment in which California postsecondary institutions will plan educational programs to train allied health professional personnel has changed fundamentally since the inception of this project in 1974. State and federal legislation, AB 1748 and PL 93-641, have shifted a good deal of responsibility from educational institutions to other public and quasi-public institutions. As noted, the California Legislature has directed the State Department of Health to develop a state health manpower needs plan and the California Postsecondary Education Commission to develop a health sciences education plan for the state using the findings of the manpower plan. The regional planning structures emerging as a result of the federal legislation are not in conflict with the new state arrangements. Nevertheless, from the perspectives of postsecondary education institutions, these changes are still uncertain in their impact, and they have yet to be fully implemented. In the case of CPEC's mandate to prepare a health sciences education plan, the first completed document is not required until 1978.

The Commission's task to develop a plan for all the segments is a formidable one, and the cooperation of the segments will be indispensable to success. Under the auspices of the Health Manpower Education Project Master Planning Committee, a foundation for needed cooperation has been started. This group could serve as a device for coordinating collection of allied health program data for planning purposes from all involved segments. If CSUC will share with CPEC whatever information it acquires, then it would be possible to avoid some duplicated effort later on. Therefore, it is recommended

> THAT ALLIED HEALTH PROGRAM DATA COLLECTED BY THE HEALTH MANPOWER EDUCATION PROJECT BE SHARED WITH THE CALIFORNIA POSTSECONDARY COMMISSION AS POSSIBLE INPUT FOR ITS MANDATED HEALTH SCIENCES EDUCATION PLAN.

In this connection, it is worth repeating that the major data deficiency which impedes improved planning and coordination of allied health education programs is in the area of determining need for trained professionals in these fields. AB 1748 assigns to the California State Department of Health the responsibility for providing a biennially updated health manpower needs plan for the state. In theory, at least, the preparation of such a plan should meet the data requirement for educational planning purposes. All other data requirements are specified within the context of the proposed Management Information System and can be generated with reference to existing system data bases.

The staffing plan outlined in the fifth chapter of this report has been estimated to cost $954,800 during its first year, including augmentations at the campus and system levels. Second- and third-year costs are estimated at $1,146,200 and $1,130,800 respectively.

The California State University and Colleges, as a state-supported institution of higher education, receives nearly all of its annual budget in the form of appropriations approved by the Legislature, state fiscal control agencies, and the Governor.

In order for new programs to be recognized in the system budget, it is necessary that they go through what is known as the Program Change Proposal process. This budget approach isolates those costs that are not merely mandatory price increases or technical budget adjustments for program size. It presents all costs for new programs and for changes in program quality standards. Thus, this projection defines changes in the real character of the program of The California State University and Colleges.

Program Change Proposals, after being identified and submitted by campus program managers, are reviewed by the campuses, the Chancellor's Office, the Student Presidents Association, the Council of Presidents, the Academic Senate, and the Board of Trustees. This review process results in selection by the Chancellor of those proposals determined to be most crucial in meeting existing and projected program requirements. The Program Change Proposals are then presented to the Board of Trustees for final CSUC review and approval, and must then be approved by the Department of Finance, the Legislature, and the Governor.

The proposals are designed to supplement the existing support levels provided by the State General Fund to

The California State University and Colleges. A careful and rigorous selection process begins in February and culminates in early September. In addition, these proposals are under continual review by the staff of the Chancellor's Office, and presentations are made to the Board of Trustees at various stages of the review process.

For the 1977-78 fiscal year, the initial selection process identified 14 systemwide areas for improvement, at an estimated cost of $33,800,000. Through the review process outlined above, a final decision was reached to request funding for seven systemwide proposals and four campus instructional programs at a total cost of $18,124,015. These requests were identified as the highest priority areas. For the 1976-77 fiscal year, the system was successful in securing state funding for approximately $1,000,000 of its requested $8,000,000 worth of program change proposals.

The earliest time for which new state support for allied health education programs could be sought, according to the regular budgeting procedures of the system is fiscal year 1978-79. Given past experience in securing funding for Program Change Proposals, it is not likely that the full amount could be secured at one time. Therefore, implementation would need to be phased, and it is likely that first priority would be given to stabilizing the system's capacity to provide the necessary clincial practicum experiences to students in the allied health professions programs. Other aspects of improved planning and coordination could be addressed simultaneously within existing resources, but the clearest educational need appears to be in improved coordination with clinical affiliates. Depending upon the degree of success here, other elements of the plan would begin to fall into place. Leadership within the Office of the Chancellor is indispensable to defining the sequencing options that might be considered and to keeping the process moving once it has begun.

B. Summary of Major Staff Recommendations

Allied health professions programs are more complex than many other academic programs because they integrate several service departments, provide clinic/agency experiences, and must provide for locating and supervising these off-campus training sites. Effective management of programs requires that they be grouped in some kind of functional relationship and given adequate staff support. The most appropriate administrative organizational pattern should, of course, be determined largely at the campus level.

IT IS RECOMMENDED THAT CAMPUSES STRENGTHEN THEIR COMMITMENT TO THE SUPPORT OF ALLIED HEALTH PROGRAMS BOTH THROUGH APPROACHES TO ADMINISTRATIVE STRUCTURE AND ASSIGNMENT OF FACULTY LEADERSHIP WHICH PROVIDES THESE PROGRAMS WITH VISIBILITY AND AN EFFECTIVE VOICE IN THE ACADEMIC COMMUNITY.

In order to respond fully to the needs of the allied health fields some new and different planning methods in the CSUC system are required. Not only must the campus consider what measure of support and dedication it wishes to give, but the Chancellor's Office must also supply leadership to the institutions in the system.

IT IS RECOMMENDED THAT:

1. A FACT-FINDING AND ANALYSIS UNIT, LOCATED WITHIN THE CHANCELLOR'S OFFICE, BE ESTABLISHED TO PROVIDE THE NECESSARY LEADERSHIP TO THE CAMPUSES CONCERNING SIZE AND TYPES

OF PROGRAMS IN THE ALLIED HEALTH PROFESSIONS.

2. THE ALLIED HEALTH EDUCATION MANAGEMENT INFORMATION SYSTEM BE GIVEN HIGH PRIORITY AND IMPLEMENTED, SYSTEMWIDE, AT THE EARLIEST POSSIBLE DATE.

3. CONSIDERATION BE GIVEN TO THE DEVELOPMENT OF CORE CURRICULA ON A GIVEN CAMPUS WHICH ARE COMMON TO THE WIDEST POSSIBLE RANGE OF ALLIED HEALTH PROFESSIONS.

Current campus and systemwide planning is often handicapped by a lack of good information at the state and local level, upon which to base planning decisions.

> IT IS RECOMMENDED THAT CERTAIN STEPS BE TAKEN AT THE CHANCELLORS'S OFFICE LEVEL TO FACILITATE PLANNING FOR THE ALLIED HEALTH PROFESSIONS ON THE INDIVIDUAL CAMPUSES. THE WORK OF THE HEALTH MANPOWER EDUCATION PROJECT IN ANALYZING AVAILABILITY OF CLINICAL TRAINING SHOULD BE UPDATED PERIODICALLY AND SHARED APPROPRIATELY.

> TIMELY INFORMATION SHOULD BE AVAILABLE FOR DETERMINATION OF PROGRAM NEEDS BOTH STATEWIDE AND REGIONALLY. SUCH ANALYSES SHOULD CONSIDER
>
> 1. NEW PROGRAM START-UP NEEDS;
>
> 2. EXPANSION OF EXISTING PROGRAMS; AND
>
> 3. PHASE-OUT OF UNNEEDED PROGRAMS.

The gathering of planning data relating to market needs is a complex and expensive undertaking. Its relevance extends to all of postsecondary education as well as governmental agencies.

> IT IS RECOMMENDED THAT THE COLLECTION OF MANPOWER PLANNING DATA BE LEFT TO APPROPRIATE STATE AND FEDERAL AGENCIES, AS DEFINED IN STATUTE, BUT THAT CSUC WORK ACTIVELY WITH THESE AGENCIES TO ENCOURAGE NEEDED DATA COLLECTION AND TO ENSURE THAT THE INFORMATION PROVIDED IS USABLE FOR ITS OWN REQUIREMENTS.

Provision of adequate support to CSUC faculty responsible for the coordination of clinical training for students is a continuing problem.

> IT IS RECOMMENDED THAT PENDING PROVISION OF BUDGETED SUPPORT FOR SUCH CLINICAL COORDINATION, THE TRUSTEES SHOULD CLEARLY RECOGNIZE THIS AS A NECESSARY INSTRUCTIONAL SERVICE, SO THAT CAMPUSES MAY ALLOCATE FACULTY TIME AS APPROPRIATE FOR COORDINATION. MORE IMPORTANTLY, HOWEVER, ADDITIONAL FUNDING SHOULD BE SOUGHT TO SUPPORT NEEDED POSITIONS.

Currently, each campus must produce assignable faculty time, elements for new program development, from internal resources. Necessarily, such support comes from the instructional budget.

> IT IS RECOMMENDED THAT A MORE REASONABLE INSTRUCTIONAL SUPPORT BASE BE DEVELOPED FOR ALLIED HEALTH PROGRAMS IN THE SYSTEMWIDE BUDGET (WITH A NUMBER OF FACULTY AND SUPPORT POSITIONS, SUPPLIES, AND OTHER RELEVANT ITEMS BEING PROVIDED EACH YEAR). SPECIAL SUPPORT SHOULD BE ALLOCATED FOR NEW PROGRAM START-UPS.

Maintenance of close linkages with clinic/agency affiliates is important and would be enhanced by the granting of adjunct faculty status to staff involved in trainee supervision.

> IT IS RECOMMENDED THAT THE CAMPUSES GRANT APPROPRIATE STATUS TO CLINICAL STAFF, SUCH AS ADJUNCT APPOINTMENTS. IT IS FURTHER RECOMMENDED THAT POLICY TO FACILITATE THE MAKING OF ADJUNCT APPOINTMENTS BE PROMULGATED AND THAT SUCH POLICY INCLUDE DEFINITION OF CONDITIONS AND LEVELS OF APPOINTMENT CONSONANT WITH THE PROFESSIONAL QUALIFICATIONS OF THE APPOINTEE.

Attention has been given to the importance of providing clinic/agency training for students as an essential part of their allied health professions education. The fact that a substantial amount of time is required in clinic/agency practice may mean that students cannot graduate in the desired time period with all requirements completed.

> IT IS RECOMMENDED THAT NO CAMPUS BE ALLOWED TO OFFER A NEW PROGRAM IN THE ALLIED HEALTH FIELDS WITHOUT INCORPORATING THE APPROPRIATE

CLINICAL OR FIELD WORK EXPERIENCE OR MAKING PROVISIONS FOR STUDENTS TO OBTAIN SUCH CLINIC/AGENCY EXPERIENCE DURING THE COURSE OF THE PROGRAM. EXISTING PROGRAMS SHOULD REVIEW THIS RECOMMENDATION IN TERMS OF THEIR RESPECTIVE CURRICULA.

The desire to be responsive to student demand has been a significant determinant of program development. There is need to temper a desire to accommodate students with stringent criteria to match needs and resources in order to ensure high quality programs.

IT IS RECOMMENDED THAT PROGRAMS BE DEVELOPED ONLY WHERE THERE IS A TOTAL TRAINING CAPABILITY. NATIONAL ACCREDITATION STANDARDS, WHERE ESTABLISHED, SHOULD BE TAKEN INTO ACCOUNT IN ALL PLANNING.

Campus responsibility for clinical training is great, since it is an important factor in the quality of students produced and because the educational institution grants the degree upon which licensure or other recognition is often predicated. It poses special difficulties in supervision and is high in cost because of necessarily low student faculty ratios.

> IT IS RECOMMENDED THAT THE CAMPUS RECOGNIZE ITS RESPONSIBILITY TO SUPERVISE THE CLINICAL PHASE OF STUDENT TRAINING, WHETHER ON OR OFF CAMPUS, AND SEEK TO PROVIDE FACULTY SUPERVISORS WHO THEMSELVES HAVE APPROPRIATE CLINICAL BACKGROUNDS.

Although educational consortia in various geographic areas of the state have yet to be fully tested, they offer potential advantages in the resources they can provide in fulfilling manpower needs in underserved areas.

> IT IS RECOMMENDED THAT, WHERE ALLIED HEALTH PROGRAMS CAN TAKE ADVANTAGE OF EXISTING OR POTENTIAL CONSORTIAL ARRANGEMENTS, SUCH OPPORTUNITIES BE EXPLORED RATHER THAN UNDERTAKING A NEW PROGRAM BY A SINGLE INSTITUTION.

Student geographic mobility and career progression needs lead to problems of intersegmental articulation. The ability of students to transfer among institutions without undue loss of credit and to meet national professional standards will be enhanced by assurance that the programs on various campuses share a common core of subject matter and practical experience.

> IT IS RECOMMENDED THAT THE SYSTEM WORK TOWARD COMMON CORE CURRICULA IN SIMILAR ALLIED HEALTH PROGRAMS WHICH MEET NATIONAL PROFESSIONAL STANDARDS AND FACILITATE INTERINSTITUTIONAL TRANSFER OF CREDIT.

Individual applications for training grants and other proposals from multiple campuses can be strengthened if these proposals take cognizance in their preparation of similar proposals from sister campuses. In some cases campuses may wish, under these circumstances, to develop joint proposals. The submission of single, coordinated proposals should also assist decision making by receiving agencies.

> IT IS RECOMMENDED THAT A SYSTEMWIDE MECHANISM BE ESTABLISHED TO COORDINATE PROPOSALS FROM MULTIPLE CALIFORNIA STATE

UNIVERSITY AND COLLEGES CAMPUSES AND TO EXCHANGE INFORMATION WHICH MAY LEAD TO A MORE CONCENTRATED EFFORT AS A SYSTEM.

APPENDIX A

LIST OF PAPERS PREPARED BY
HEALTH MANPOWER EDUCATION PROJECT

Health-Related Program Inventory

Postsecondary Education Program Articulation Problems with Special Reference to the California Community College System

Manpower Projections to 1980: Econometric Study

Management Information System for Health-Related Programs

Reports on Selected Health Professions

- Dietetics
- Environmental Health
- Health Administration
- Medical Technology
- Occupational Therapy
- Physical Therapy
- Speech Pathology and Audiology

APPENDIX B

MEMBERSHIP OF MAJOR PROJECT COMMITTEES

A. MASTER PLANNING COMMITTEE

Dr. Roy Burwen, Director
Health Manpower Education Project
The California State University and Colleges

Ms. Jean Clawson
Office of the Chancellor
California Community Colleges

Assemblyman Gordon Duffy
Subcommittee on Health Manpower

Dr. David Grover
Higher Education Specialist
California Postsecondary Education Commission

Mr. James C. Heidenreich
Orthopedic Hospital

Mr. Dale Houghland
Department of Health, State of California

Mr. Jay Olins
General Counsel
California Association of Paramedical Schools

Dr. Clinton Powell
Office of the President
University of California

Senator Jack Schrade
Senate Health and Welfare Committee

Dr. Alex C. Sherriffs
Vice Chancellor, Academic Affairs
The California State University and Colleges

Dr. Leonard Wendland
Director
Health Related Programs
University of Southern California

Dr. Charles White
California Regional Medical Program

B. PROJECT COMMITTEE

John J. Baird
Deputy Dean, Educational Programs and Resources
Office of the Chancellor

Nancy Baldwin
Associate, Continuing Education
Office of the Chancellor

Harold L. Best
Director of Institutional Research
California State University, Fresno

Roy Burwen
Director, Health Manpower Education Project
Office of the Chancellor

Ray L. Clark
Associate Director, Systemwide Planning and Administrative
  Systems Support, Information Systems
Office of the Chancellor

Donald Fletcher
Assistant Director, Health Manpower Education Project
Office of the Chancellor

Leon Thomas
Associate Dean, Institutional Research
Office of the Chancellor

J. J. Thompson
Professor of Communicative Disorders
California State University, Long Beach

David Walden
Special Assistant to the Chancellor
Office of the Chancellor

C. ACADEMIC PLANNING COMMITTEE (CAMPUS COORDINATORS)

Mr. Carl Anderson
Assistant Professor, Physical Therapy
San Jose State University

Dr. Robert L. Barlet
Associate Professor of Biological Sciences
Coordinator of Health Manpower Education Project
California State Polytechnic University, Pomona

Dr. Kenneth Briney
Assistant Professor of Health Education
San Francisco State University

Dr. Tracey G. Call
Professor, Biological Sciences
California Polytechnic State University, San Luis Obispo

Dr. Leroy Chauffe
Associate Professor of Chemistry
California State University, Hayward

Dean John R. Coash
School of Natural Sciences and Mathematics
Professor of Earth Sciences
and
Dr. Robert A. Cornesky
Acting Chair of Health Sciences
Associate Professor of Biology
Director of Center for Allied Health Sciences
California State College, Bakersfield

Dr. Calvin A. Davenport
Professor of Microbiology
California State University, Fullerton

Dr. Amer El-Ahraf
Associate Professor of Health Science
Chairman, Department of Health Science
California State College, San Bernardino

Dr. Eugene N. Garcia
Associate Professor of Chemistry and Health Science
California State College, Dominguez Hills

Dr. Lennin H. Glass
Associate Dean, School of Communication and Professional Studies
Professor of Health Sciences
California State University, Northridge

Dr. Jerry M. Gotta
Associate Professor of Health and Safety Studies
California State University, Sacramento

Dr. Jo Ann Johnson
Coordinator, Health-related Program Development
Assistant Professor of Nursing
California State University, Los Angeles

Ms. Susan E. Kellogg
Assistant Professor of Speech Pathology and Audiology
California State College, Stanislaus

Dr. George D. Kent
Assistant Professor of Political Science
California State University, Chico

Ms. Marianne Kochanski
Lecturer, Health Science and Safety
San Diego State University

Dr. William L. Lester
Associate Professor, Biology
Humboldt State University

Dr. Joseph L. Townsend
Professor of Rehabilitation Counseling
California State University, Fresno

Dr. Robert E. Tumelty
Director, Center for Health Manpower Education
California State University, Long Beach

Mr. Haywood C. Vaughn
Research Associate, Department of Nursing
Sonoma State College

APPENDIX C

OCCUPATIONAL FAMILIES AND JOB SPECIALTIES STUDIED BY CSUC HEALTH MANPOWER EDUCATION PROJECT*

1. Clinical laboratory science - Medical technologist, Medical laboratory supervisor, Microbiologist, Microbiology technologist, Blood bank technologist, Public health microbiologist, Medical technologist/bioanalyst, Clinical chemist, Public health scientist.

2. Dietetics - Nutritionist, Dietitian/nutritionist, Dietitian, Food service supervisor/administrator.

3. Environmental health/sanitation - Sanitarian, Occupational safety/health worker.

4. Health education - Health science and safety educator, Allied health educator, Community/public health educator, School health educator, School/community health educator, Community/public health educator and Community/health worker, Health science/safety educator.

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*See CSUC Health and Health-Related Academic Program Inventory for additional detail.

5. Health care management - Health administrator.

6. Occupational therapy - Occupational therapist (BA and MA), Dance therapist, Manual arts therapist, Music therapist, Art therapist.

7. Physical education (health) - Adaptive physical education director, Athletic trainer, Corrective therapist, Exercise physiologist.

8. Physical therapy - Physical therapist.

9. Psychology - Clinical psychologist, School psychologist, Psychometrist, Mental health technologist, Mental health associate, Mental health consultant, Community mental health counselor, Counseling psychologist.

10. Recreation therapy - Recreation therapist.

11. Rehabilitation counseling - Rehabilitation counselor, Vocational rehabilitation counselor.

12. Special education - Teacher of the deaf/hard of hearing, Teacher of the learning handicapped, Teacher of the

mentally retarded, Teacher of the physically handicapped, Teacher of special education not elsewhere classified, Teacher of the severely handicapped, Teacher of the deaf/blind, Administrator of special education, Teacher of the visually handicapped.

13. Speech pathology/audiology - Audiologist, Teacher of the communication handicapped, Speech pathologist/ audiologist, Speech pathologist, Audiology aide, Audiometrist.

14. Social work - Medical social worker/medical social worker associate, School social worker, Psychiatric social worker, Social worker (aging).

15. Health-related professions not elsewhere classified - First aid worker, Environmental engineer, Biomedical engineer, Cardiopulmonary rehabilitation worker, Medical sociologist, Biophysicist, Physician's assistant, Radiological health physicist/technologist, Nuclear medicine technologist, Biochemist, Biologist, Biomedical artist, Human services worker, Child development specialist, Health data analyst, Radiologic technologist.

APPENDIX D

MODEL AFFILIATE AGREEMENT

Campus-affiliate relationships may be formalized by executing standardized documents entitled "Agreement for Furnishing Clinical Affiliation." The following is an example of such a document:

> This Agreement, made and entered into this day, _______________, pursuant to Education Code 23608, by and between the Trustees of The California State University and Colleges, hereinafter called the "Trustees," on behalf of (name of campus), hereinafter called the "University" or "College" and (name of affiliate), hereinafter called the "Facility."
>
> WITNESSETH:
>
> Whereas, Trustees have approved an (name of academic department or program), program for the University (College) and such program requires clinical/agency field work experience and the use of clinical facilities;

Whereas, the (accrediting agency) have heretofore accredited the University's Department of ________;

and

Whereas, it is in the mutual benefit of the parties hereto that students of the University's (College's) (name of program) program use the clinical facilities of the Facility for their clinical (name of allied health field) experiences;

Now, Therefore, in consideration of the covenants, conditions, and stipulations hereinafter expressed, and in consideration of the mutual benefits to be derived therefrom, the parties hereto agree as follows:

I. FACILITY SHALL:

A. Permit each student who is designated by University (College) pursuant to paragraph IA below to receive clinical (name of occupation) experience at the Facility in the hereinafter listed types of (name of occupation), and shall furnish, and permit such students and University (College) (name of department) instructors free access to, appropriate clinical (name of occupation) field work experience: ________________.

B. Furnish appropriate clinical (name of occupation) facilities, on a rotational basis in such a manner that there will be no conflict in the use thereof between the University's students from other educational institutions if any.

C. Maintain the clinical facilities used for the clinical fieldwork (name of occupation) experience in such a manner that such facilities shall, at all times, meet (name of accrediting or licensing agency or association), minimum essentials for an approved field/clinical program.

D. Assure that staff is adequate in number and in quality to insure safe and continuous health care to individuals.

E. Provide University (College) (name of department) instructors taking part in the clinical (name of occupation) experience, on a group basis, unless otherwise specified, the following facilities: (1) a conference-type space suitably furnished for a small group; and (2) access for each instructor to the Medical/Agency Library.

F. During working hours, when a student is receiving clinical experience, (name of agency) will furnish at no cost to such student emergency health care for illnesses resulting from the participation by such student in the learning program at (name of agency) provided, however, (name of agency) determination of the duration and the extent of such emergency or first-aid care shall be conclusive, and accept illness or injury, occurring from the student's own willful misconduct, gross negligence, or disregard of rules and regulations of both (name of agency) and the University (College).

G. Permit and encourage members of the residence staff and attending medical/agency staff of the Facility to participate in the instructional phase of the clinical (name of occupation) experience.

H. Permit the facilities director of (name of program), and other designated (name of program), personnel to attend meetings of the University's (name of department) faculty, or any committee thereof, to coordinate the clinical (name of occupation) experience program provided for under this Agreement.

I. Have the right, after consultation with the University (College), to refuse to accept for further clinical (name of occupation) experience any of the University's (College's) students who, in the Facilities, judgment is not participating satisfactorily.

J. Notify the University's (College's) clinical (name of department) instructors, in advance, of any change in the Facility's Director of (name of program) appointment.

II. TRUSTEES, THROUGH THE UNIVERSITY, SHALL:

A. Designate the students who are enrolled in the (name) program of the University (College) to be assigned for clinical (name of occupational program) experience at the Facility, in such numbers as are mutually agreed to by both parties.

B. Establish a rotation plan for the clinical (name of occupation) experience in the type of _____________ _____________ specified in Paragraph IA above; provided, however, that specified training areas to be utilized, therefore, should be selected by mutual agreement between the Facility's Director of (name of program) and the University's Coordinator of the Department of __________ _____________ or their duly authorized representatives.

C. Supervise all instruction and clinical field work (name of occupation) experience given at the Facility to assigned students and provide the necessary (name of program) instructors for the clinical (name of occupation) experience program provided for under this Agreement.

D. Keep all attendance and academic records of students participating in said program.

E. Designate under this Agreement only students who are in good health at the time of their designation, as disclosed by an adequate physical and health examination provided by the University (College) prior to such designation.

F. Be responsible for student professional activities and conduct while in the Facility.

G. Require every student to conform to all applicable Facility policies, procedures and regulations, and all requirements and restrictions specified jointly by representatives of the University (College) and the Facility.

H. Require University's (College's) clinical (name of program or department) instructors to notify Facility Director of (name of program) in advance of: (1) student schedules; (2) placement of students in clinical assignments; and (3) changes in clinical assignments.

I. In consultation and coordination with the Facility's Director of (name of occupation) arrange for periodic conferences between appropriate representatives of the University (College) and Facility to evaluate the clinical field work (name of occupation) experience program provided under this Agreement.

J. In consultation and coordination with the Facility's Director of (name of occupation) and (name of occupation) staff, plan for clinical (name of occupation) experience to be provided to students under this Agreement.

K. Provide and be responsible for the care and control of the University's (College's) educational supplies, materials, and equipment used for instruction during said program.

L. Provide for orientation of students and faculty assigned to the Facility.

III. This Agreement shall become effective on (date) and shall continue until (date) provided, however, it may be terminated by either party after giving the other party six month's advanced written notice of its intention to so terminate; provided further, however, that any such termination by the Facility shall not be effective at the election of the University (College), as to any student who, at the date of mailing or said notice by the Facility was participating in said program until each student has completed the program for the then current academic year. (Name of Facility) and University (College) shall agree as follows:

University (College) shall be responsible for damage caused by the negligence of its officers, agents, and employees occurring in the performance of this Agreement.

Facility shall be responsible for damage caused by the negligence of its officers, agents, and employees occurring in the performance of this Agreement.

It is the intention of the University (College) and Facility that the provisions of this paragraph be interpreted to impose on each part, responsibility for the negligence of their respective officers, agents, and employees.

IV. This Agreement may at any time be altered, changed, or amended by mutual agreement of the parties in writing.

V. Inasmuch as the said students shall not be employees of (name of facility), the latter does not assume, and shall not assume any liability under the State Compensation Insurance and Safety Act for, by, or on behalf of any student performing, receiving experience, or traveling pursuant to this Agreement. The said student should not be entitled to any monetary remuneration or subsidy for services performed by them in the specified course of training nor shall (name of facility) otherwise have any monetary obligation to the University (College) its instructors, or anyone else by virtue of this Agreement.

APPENDIX E

Assembly Bill No. 1748

CHAPTER 600

An Act to add Sections 22712.5, 22712.6, and 22712.7 to the Education Code, and to add Article 19 (commencing with Section 429.94) to Chapter 2 of Part 1 of Division 1 of the Health and Safety Code, relating to health services.

[Approved by Governor August 26, 1976. Filed
with Secretary of State August 27, 1976.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1748, Duffy. Health manpower planning and education.

Existing law provides for a state medical contract program to provide aid for education and training in the area of primary care family physicians' services and provides for a Health Manpower Policy Commission with specified duties in such connection.

The bill would require the State Department of Health to prepare a Health Manpower Plan containing specified elements for California. The bill would require the State Department of Health to issue an updated Health Manpower Plan to the Legislature, Governor, and the California Postsecondary Education Commission on or before September 1, 1977, and biennially thereafter. The bill would require the California Postsecondary Education Commission to issue a Health Sciences Education Plan, based on the Health Manpower Plan issued by the state department, and to issue an updated Health Sciences Education Plan to the Legislature and the Governor on or before March 1, 1978, and biennially thereafter.

The people of the State of California do enact as follows:

SECTION 1. Section 22712.5 is added to the Education Code, to read:

22712.5. The commission shall issue a Health Sciences Education Plan which shall take into account the Health Manpower Plan issued by the State Department of Health pursuant to Section 429.96 of the Health and Safety Code.

SEC. 2. Section 22712.6 is added to the Education Code to read:

22712.6. The Health Sciences Education Plan shall consist of at least the following elements:

(a) A finding, taking into account the findings of the Health Manpower Plan issued by the State Department of Health, as to whether health sciences education enrollment levels are adequate to meet the needs in California for health personnel, by category and specialty within each category.

(b) A finding as to the extent to which the sites of health sciences training programs make maximum available use of existing clinical and classroom resources throughout the state.

(c) Recommendations concerning the establishment of new programs or the elimination of existing programs in health sciences according to findings in subdivisions (a) and (b).

SEC. 3. Section 22712.7 is added to the Education Code, to read:

22712.7. The commission shall issue an updated Health Sciences Education Plan and recommendations to the Legislature and the Governor on or before March 1, 1978, and on or before March 1 of every even-numbered calendar year thereafter.

SEC. 4. Article 19 (commencing with Section 429.94) is added to Chapter 2 of Part 1 of Division 1 of the Health and Safety Code, to read:

Article 19. Health Manpower Planning

429.94. The state department shall prepare a Health Manpower Plan for California. The plan shall consist of at least the following elements:

(a) The establishment of appropriate standards for determining the adequacy of supply in California of at least each of the following categories of health personnel: physicians, midlevel medical practitioners (physician's assistants and nurse practitioners); nurses; dentists; midlevel dental practitioners (dental nurses and dental hygienists); optometrists; optometry assistants; pharmacists; and pharmacy technicians.

(b) A determination of appropriate standards for the adequacy of supply of the categories in subdivision (a) shall be made by taking into account all of the following: current levels of demand for health services in California; the capacity of each category of personnel in subdivision (a) to provide health services; the extent to which midlevel practitioners and assistants can substitute their services for those of other personnel; the likely impact of the implementation of a national health insurance program on the demand for health services in California; professionally developed standards for the adequacy of the supply of health personnel; and assumptions concerning the future organization of health care services in California.

(c) A determination of the adequacy of the current and future supply of health personnel by category in subdivision (a) taking into account the sources of supply for such personnel in California, the magnitude of immigration of personnel to California, and the likelihood of such immigration continuing.

(d) A determination of the adequacy of the supply of specialties within each category of health personnel in subdivision (a). Such determination shall be made, based upon standards of appropriate supply to specialty developed, in accordance with subdivision (b).

(e) Recommendations concerning changes in health manpower policies, licensing statutes, and programs needed to meet the state's need for health personnel.

429.95. The state department shall consult with the Health Manpower Policy Commission, health systems agencies, and other appropriate organizations in the preparation of this plan.

429.96. The state department shall issue an updated Health Manpower Plan and recommendations to the California Postsecondary Education Commission, the Legislature, and the Governor on or before September 1, 1977, and on or before September 1 of each odd-numbered calendar year thereafter.

APPENDIX F

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